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The influence of artificial intelligence marketing on customer satisfaction in online retail

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Abstract

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The online retail has changed considerably due to artificial intelligence. Companies have more possibilities to control the buying behaviour of their customers through AI marketing. The purpose of the study was to determine the influence of artificial intelligence marketing on customer satisfaction in online retail. Information and results out of this study might help companies to discover a way to increase customers satisfaction with AI marketing. The major focus was on Facebook ads, Amazon recommendations and chatbots as these applications are the most popular ones.

The data collection consists of two parts. On the one hand, the theory of artificial intelligence, AI in marketing, customer satisfaction and online retail has been studied in detail in order to obtain valuable background information and get adequate knowledge of the topic. On the other hand, a survey as a quantitative method was conducted.

The results showed that customer satisfaction is not positively influenced by artificial intelligence marketing but depends on the individual preferences of the customers. Due to the constant development of artificial intelligence, it is possible that in the future the satisfaction can be improved by artificial intelligence-based applications.

Keywords: artificial intelligence, artificial intelligence marketing, customer satisfaction, online retail

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1 Introduction

Artificial intelligence, Machine Learning, Big Data Analytics – all these concepts have the same meaning: they all comprise programmed systems which learn, act and decide like humans. Artificial intelligence introduced the next era after digital transformation and more and more companies use artificial intelligence systems in order to improve the company's performance. Over the past years, AI has become an important component of marketing strategies and thus the growing influence on people's daily buying process. Furthermore, artificial intelligence in marketing counts to one of the most important trends in marketing 2018 (Hengsberger 2018). Although artificial intelligence has been developed for years, marketing specialists have only recently started using it to improve their marketing strategies and tools.

Marketing is not only influenced by artificial intelligence but also by customers. Customers have a crucial influence on the success of a marketing strategy and thus also on company's success. Marketing and customers often have to be considered in interaction with each other to ensure success. In order to achieve this balance between marketing and customers, the company has to align its marketing strategy with the needs of its customers. Customer journey, customer relationship management, customer experience and customer satisfaction are helpful in order to understand the relation between marketing and customers. Especially customer satisfaction is a meaningful indicator for the success of the marketing strategy or even for a company's success.

In this bachelor thesis the topics 'artificial intelligence marketing' and customer satisfaction will be combined by going into more detail about the influence of AI marketing on customer satisfaction in online retail. In order to give a clear understanding of this thesis, the objectives and delimitations will be presented in the following chapter. Subsequently, the research questions, literature review and the research method will be introduced and finally the structure is described.

The purpose of this study is to find out the influence of artificial intelligence marketing on customer satisfaction combined with the aim to analyse how online retail implement artificial intelligence. Furthermore, the thesis will focus on tailored marketing, recommendation engines and chatbots controlled by AI systems.

The topic of the study is very broad, therefore major restrictions are necessary to achieve a representative result. This thesis is delimited by the type of retail so that the main focus will be the online retail because online AI marketing tools are the most important and growing ones.

In addition, the online marketing tools based on artificial intelligence are also restricted to Facebook ads, Amazon recommendations and Chatbots from international online retailer. The reason for this delimitation is the popularity of these tools with regard to the empirical part.

In order to have a sufficient content for the thesis research questions are introduced. The main research question is:

- **How does AI marketing influence customer satisfaction?**

In order to obtain a fundamental result, the following sub-questions are developed to support the main research question:

- How do Facebook ads influence buying process?
- How do Amazon recommendations influence buying process?
- How do chatbots influence buying process?

After the theoretical facts have been clarified and the customer satisfaction in online retail with regard to AI has been found out, the questions will be analyzed in detail in the evaluation.

The empirical part of this study will focus on quantitative research method. The data will be conducted in form of questionnaires to find out how customers are satisfied with different AI marketing tools, like Facebook ads or Amazon recommendations.

The questionnaire consists of basic questions to clarify the background of the interviewees. Further questions are asked to find out to what extent the respondents are aware of the impact of AI in marketing. There are also questions using the Net Promotor Score to measure customer satisfaction in relation to the AI marketing tools.

The questionnaire is provided with visualizations to give the respondents a precise idea of the AI marketing tools.

The theoretical part will start with an overview about artificial intelligence. Among other things, application areas and opportunities and risks are explained in more detail to give the reader an understanding of the complex topic of artificial intelligence. Then, the role of artificial intelligence in marketing will be presented with a main focus on the following tools: advertising marketing, recommendation engines and chatbots. In addition, case studies from Amazon and Facebook will be used to get a practical insight how AI is used in marketing.

The empirical part consists of the questionnaire's results. In this part, the results are recorded and evaluated, and findings are listed.

The study will be completed by a conclusion including a final discussion. In the end, possible statements on the influence of artificial intelligence marketing on customer satisfaction on online retail are made.

2 Artificial intelligence

In the 20th century, artificial intelligence was a significant discovery in science but over the years it is nearly impossible to imagine life without artificial intelligence. Artificial intelligence, also referred to as AI, is no longer a niche innovation of specialized technology - its meaning increases awareness in the field of economy as well as politics. (Bünthe 2018a, p.1.) In this chapter this growing importance of artificial intelligence will be explained.

Artificial intelligence cannot be clearly defined until today. This is due to the fact that "Intelligence" has no clear definition. (Bünthe 2018a, p.5.) A corresponding definition can be presented as follows: "Ability [of a human] to think abstractly and

rationally and to derive useful action” (Duden 2018) and “(...) to learn, understand, and make judgements or have opinions that are based on reasons” (Cambridge Dictionary 2014a). Artificial intelligence systems are supposed to understand those human behaviours in order to be able to work like humans. This includes problem solving, understanding language, learning and flexible responding. Different definitions of AI have become established which differ according to the focal point. (Gentsch 2018, pp.17-18.) On the basis of the core statements, mentioned above, it is possible to derive a definition for artificial intelligence:

“Artificial intelligence is the study of how to produce machines that have some of the qualities that the human mind has (...)” (Cambridge Dictionary 2014b).

This definition goes beyond the fact that humans associate artificial intelligence with robots from science-fiction-movies. The advancing developing of AI systems has created a competition between humans and machines. (Gentsch 2018, pp.17-18.)

The beginning of artificial intelligence can be traced back to the middle of the 20th century. Alan Turing, a British mathematician and computer scientist, gave lectures on artificial intelligence and published his findings in the article “Computing Machinery and Intelligence” in the early 50s. Furthermore, Warren McCulloch and Walter Pitts presented the McCulloch-Pitts-Neuron which represents the first development of artificial structures in history. This neuron had the ability to save, calculate and change information. (Russell & Norvig 2012, pp. 39-40.)

Alan Turing has also contributed to the history of AI based systems in the following years. For example, he developed the Turing test which is supposed to detect human-like intelligence in a machine. This development is controversial until today as no machine has passed this test. In the 70s, scientists developed expert systems which have been used in the field of speech recognition and medicine. Those knowledge-based systems are known as the first AI systems. The expectations of such systems could not be realized and thus the history of artificial intelligence has reached a low point at the beginning of the 90s which was called “AI winter”. (Gentsch 2018, pp.27-28.)

Shortly after the low point was reached, artificial intelligence regained interest and was applied in the field of neuroinformatic. From this point, the field of artificial intelligence was no longer considered as an isolated discipline. These developments have contributed that AI is seen as a combination of different field of research. This fact increased the interest of economy, politics and society and led to the growth of the current importance of artificial intelligence. (Russell & Norvig 2012, pp. 42-47.)

Until the 21st century, researchers were not able to develop a system that would be on a par with humans. Constantly new developments in artificial intelligence show that AI continues to progress. Nowadays, artificial intelligence can be found in the everyday life of every human being. For example, intelligent agents operate in search and recommendation engines. (Gentsch 2018, p. 29.) Various examples, like Amazon and Google, show that artificial intelligence is integrated in different processes and thus can be applied in different areas.

2.1 Application areas

Artificial intelligence has evolved over the last few years. With the growing development, the complexity of AI has also increased and thus a differentiation is made between different areas. There are numerous application areas, but the most important ones are expert systems, natural language processing, machine translation, computer vision and robotics (Görz & Nebel 2015).

Expert systems

Expert systems belong to program systems which can not only store knowledge but also form conclusions and solutions. This advance is due to the progress from simple programmes via complex programme systems to knowledge-based systems. Expert systems are characterized by high reliability in terms of results. Such systems are highly complex which is evidenced by the fact that humans are able to understand and verify the solutions provided by artificial intelligence systems. Expert systems are used among others in language recognition and language translation. (Styczynski & Rudion & Naumann 2017, pp. 10-14.)

Since 1970 expert systems have become very important in medicine. Their main task is to improve and support medical performances, e.g. making diagnoses and therapy recommendations. Nevertheless, the knowledge of expert systems is limited. In contrast to human knowledge, such systems have neither memories, empathy nor motivation. Particularly in medicine, ethical concerns arise regarding to expert systems. Until today the question of responsibility has not been clarified if incorrect results arise. Besides, it is uncertain whether expert systems take data protection and data security into account. (Möller 2017, pp.6-9.)

Natural language processing

This section focuses on the acquisition, understanding and use of natural language in relation to artificial intelligence systems. The main focus is on the communication between human and machine with the aim of facilitating this. Natural language processing has among others the following tasks: document classification, keyword recognition and language recognition. The classification of documents is used by different email providers, e.g. they use AI based systems to classify incoming emails as spam or confidential. Furthermore, artificial intelligence systems recognize topics by combination of different keywords to one topic for example. Thus, the reader can find documents based on their contents. (Deng & Liu 2018, pp. 79-83.)

Nowadays the language recognition plays an important role in everyday life: Alexa, Siri and Cortana enable humans to avoid typing mainly. Although the language recognition has evolved greatly over the last few year, it still has some improvements. Those systems are able to recognize the correct grammar, but the different human phonetic formations complicate the process for machines. In addition, artificial intelligence systems are not capable to recognize the meaning of the spoken words and according to experts this progress will not happen in the next twenty years. (Görz & Nebel 2015.)

Machine translation

Machine translation has developed in the past few years. Already at the beginning of the internet age it was possible that machines translated words into another language. However, the translation of texts was not satisfactory because the

grammar of the particular language was not considered. The introduction of artificial intelligence in machine translation led to a solution of this problem: Nowadays, texts can be translated by expert systems into another language almost without grammatical problems. The pioneers are “Google translate” and “DeepL”. For example, “DeepL” created an AI Assistance for Language and provides nine languages for this procedure (DeepL GmbH 2019.)

Furthermore, expert systems also enable the translation of web pages or posts from social networks. In 2018, Facebook has achieved an improvement regarding to the translation of user posts: The system includes not only world languages but also smaller languages, such as Urdu which occurs in South Asian regions (Falcon 2018.).

Computer vision

Computer vision is mainly concerned with the image processing. The visual capacity of biological organism is to be reproduced with the aid of artificial intelligence. For this purpose, algorithms are used which recognize features from images. Then a classification is done to distinguish between different images. There was also a significant development in this area. In the past, algorithms differentiated between elements such as lines and areas. Today neuronal networks are used to recognize patterns in different levels and apply them to larger areas of the image. This technology allows a faster image interpretation and thus a more efficient image processing. (Görz & Nebel 2015.)

Robotics

Robotics is the most demanding and complex field of artificial intelligence because almost all methods and techniques of AI have to be applied. Robots should be able to make work easier for humans by recognizing pictures, understanding language and developing own procedures. Robots are not substitutes for humans. (Görz & Nebel 2015.) Hanson Robotics is one of the leading companies which develop artificial intelligence and robotics. In October 2017 the company introduced the robot Sophia which is characterized by its human appearance and behaviour. Sophia differs from the robots developed so far due to its appearance and its special capabilities. It is able to imitate gestures and facial expressions

and has the ability of facial recognition. (HANSON ROBOTICS LTD 2019). Sophia belongs to the category of humanoid robots which is the most developed form of artificial intelligence. In addition, a distinct is made between manipulators and mobile robots.

Manipulators are stationary robots consisting of movable joints. They are mainly used in industry, such as automotive and medical industry. For example, they are designed for the manipulation of individual parts. (Staicu 2019, pp. 1-4.)

Mobile robots can move independently because mechanisms such as wheels or legs ensure the robots' independent movement. Those robots are able to recognize obstacles and objects and thus have the ability to avoid them. Due to their capabilities, mobile robots are used as unmanned land vehicles or autonomous underwater vehicles. (Görz & Nebel 2015.)

The humanoid robots are a combination of manipulation and mobility. The robot Sophia has almost all requirements that this type of robot should have: human-like movement and communication. Although, Sophia is able to talk about pre-defined topics, its intelligence is not comparable to human intelligence. (Görz & Nebel 2015.)

The development from simple language recognition systems to humanoid robots show that humans develop robots that resemble their equals. Nevertheless, no robot has yet been developed that is on a par with humans.

2.2 Artificial intelligence in business

In addition to increasing sales, companies also have the goal to optimize their business operations. Many companies use artificial intelligence-based systems for this purpose. Billions of dollars were invested in artificial intelligence every year with a rising tendency for the following years. Nevertheless, approximately 50% of the companies, which involved AI-based systems, do not use their artificial intelligence capacity to improve their business. The reasons for this are the risks associated with artificial intelligence. However, artificial intelligence means developing new opportunities for many companies. Thus, the new technology entails opportunities as well as risks for businesses. (eMarketer 2018.)

One purpose of using artificial intelligence is to achieve new opportunities. Artificial intelligence applications have improved business operations in a certain level. One of the most important opportunities for companies was developed in 2013 – Google Analytics. Companies have the possibility to analyse data for their businesses and are able to combine important figures for different departments. Thus, Google Analytics enables companies to get an overview of their business performance. (Google Marketing Platform 2019.)

There are plenty of opportunities for each business sector. In the following an outlook on opportunities arisen by AI for sales, marketing & customer service and logistics is given.

Sales

Artificial intelligence supports sales departments in different ways. One opportunity is the price optimization. For example, artificial intelligence systems are able to calculate an appropriate discount including considering features like number of competitors, substitutions and company size. Furthermore, AI algorithm make forecasts accurately, e.g. in order to predict the revenue of the next period. Lead scoring also counts to the opportunities created by artificial intelligence. Sales persons have a more detailed overview about their customers' buying behaviour and the level of probability to end the deal successfully. (Antonio 2018.)

Marketing & Customer service

On the one hand, marketers could improve their work with the support of artificial intelligence and on the other hand, AI systems create new experiences for customers. Expert systems enable marketers to improve their sales promotion, advertisements positioning and others regarding to their customers' behaviour, competitors and budgets. (Casillas & Martínez-López 2010.) Another important development are chatbots which improve the communication between a company and its customers. Companies have the opportunity to response to many customers' requests at the same time and thus, customer care can be done more effective with the use of conversational chatbots. (Gentsch 2018, pp.83-84.)

Logistics

Transportation and logistics are a complex area which can be improved by artificial intelligence systems. AI has achieved improvements in many different parts: e.g. airport and ports operations. Due to the complexity, only a small part will be illustrated by means of an example. One opportunity of the use of artificial intelligence is the optimizing gate assignments in airports. AI systems ensure a structured process for passengers at airports. This includes the processes at check-in counters, gates and baggage belts. For example, AI systems react faster and more efficiently to delays and thus guarantee an organised process. (Zak, Hadas & Rossi 2018, pp. 389-404.)

Although the usage of artificial intelligence in business entails many opportunities for different business areas, a wide range of risks arisen through the use of AI.

The 21st century is characterized by a constantly changing environment which includes new technologies such as artificial intelligence. This increases the challenges for companies: Businesses have to rethink their concept in order to handle those risks arisen by artificial intelligence. (Gentsch 2018, p 185.) Artificial intelligence causes two major risks: big investments and changes for employees.

Big investments

Before companies can include artificial intelligence systems in their business operations, they have to make investments. Companies need to align their entire operations to AI. On the one hand, they have to invest in technologies because AI suitable systems are required. On the other hand, companies have to develop

and train their employees and hire experts who are specialized in artificial intelligence.

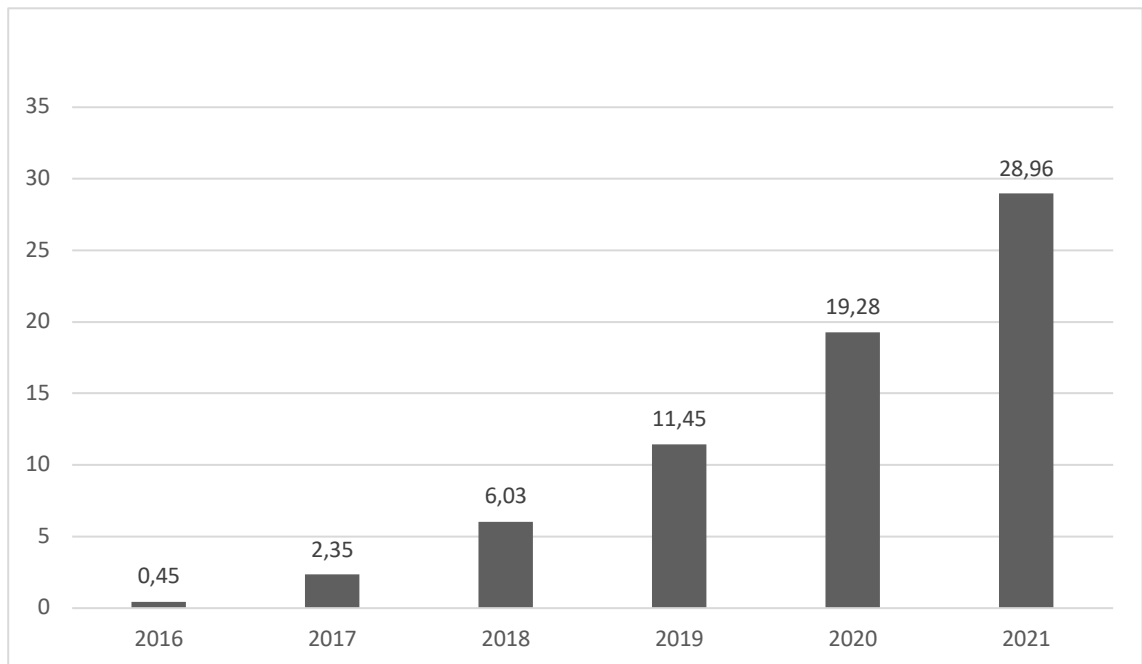


Figure 1. Artificial intelligence technology spending worldwide in billion US\$ (eMarketer 2018.)

Figure 1 shows how much companies spend on artificial intelligence technology worldwide. This figure just includes the investments in technology. There are also other costs, such as personnel costs which are not included. The figure illustrates the extent of investments in AI technologies and indicates that investments in such technologies will be necessary in the future. (eMarketer 2018.) Those big investments are a risk but if companies use AI systems to improve their operations, the investments are no longer a risk rather than a way to achieve new opportunities.

Changes for employees

When companies change their operations and introduce new technologies, one important factor is their employees. Companies have to train their employees in order to deal with the new progress. In many cases, marketers are not prepared for artificial intelligence. The reason is often not a lack of further training – the employees are not ready for artificial intelligence. They are afraid of changes, especially in losing their jobs. (eMarketer 2018.) Companies have to prepare their

employees for the changes and thus, decrease the fear of terminations. Nevertheless, jobs are terminated by AI systems, but this is a risk for employees not for a company. (Gentsch 2018, pp. 185-189.)

The introducing of artificial intelligence systems will entail opportunities as well as risks for a company. Risks can be reduced by preventive measures and considerations regarding investments and employees. If the various opportunities are used, companies can improve their business operations.

3 Artificial intelligence in marketing

The importance of artificial intelligence for a business has increased significantly in recent years. Especially in the marketing sector, AI is a useful support to analyse customer behaviour, customer needs and customer satisfaction more efficiently. Thus, companies have the opportunity to improve the efficiency of customer relationships with the support of artificial intelligence.

3.1 Meaning of artificial intelligence in marketing

The effects of artificial intelligence in marketing are significant for a company. With the usage of AI applications, companies such as Amazon, Google and Facebook have managed to become one of the most valuable companies in the world. (Bünthe 2018a, p. 7.) Whether giant companies or start-ups, the increasing importance of artificial intelligence in marketing will be explained from a current as well as a future perspective in the following paragraph.

3.1.1 Current usage of artificial intelligence in marketing

This part mainly refers to the study 'Künstliche Intelligenz im Marketing' released by Prof Dr Claudia Bünthe in 2018 which was published at the SRH International Management University Berlin. This study is based on a survey from 2018 where marketing manager from Germany, Austria and Switzerland were interviewed. (Bünthe 2018b, p. 4.)

The results of the study show that about 80% of respondents consider artificial intelligence to be important for the success of a company and also the importance

for marketing. Approximately 87% of the interviewed marketing managers are of the opinion that AI should be used more in marketing. Despite these assessments, figure 2 shows that the use of AI in marketing is very low. (Bünthe 2018b, pp. 4-8.)

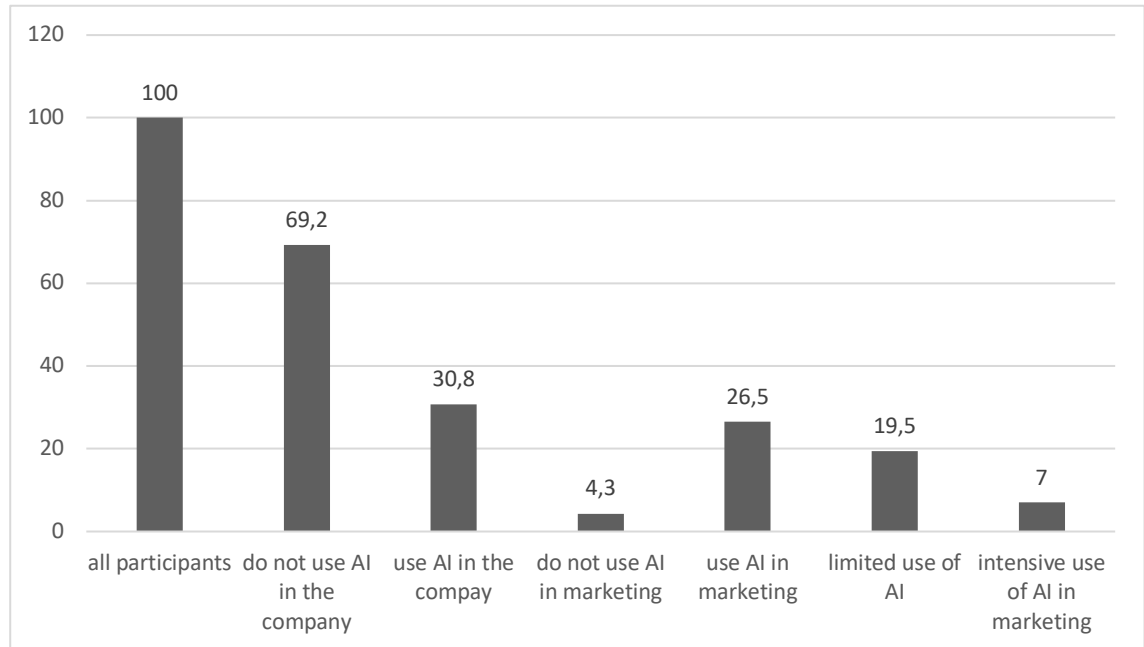


Figure 2. Artificial intelligence usage in businesses in % of the attendees (Bünthe 2018b, p. 12.)

Only 20.8% of the 208 respondents use artificial intelligence in their company but 26.5% of them use AI in marketing. The figures show that although the use of AI in the company is relatively low, the use in the marketing sector is very high in comparison. Nevertheless, only 7% use artificial intelligence intensively. This is due to the fact that most employees are not trained to use such a technology. AI is mainly used in customer analysis and customer interaction. (Bünthe 2018b, pp. 4-8.) This study demonstrates that artificial intelligence is used in marketing, but the quantity and intensity is expandable which will be accelerated by the developments of AI in the future.

3.1.2 Marketing mix

The marketing mix is an instrument to implement the previously defined marketing goals. It is divided into product policy, pricing policy, distribution policy and

communication policy. The marketing mix consists of 4P's: product, price, promotion and placement. In some literatures a 5th component is added - people. This concept is influenced by the external environment, e.g. customers, competitors and producers. (Sherlekar, Prasad & Victor 2010, pp. 1-22.)

Product

The product forms the basis of a concept including product idea, product development and product name. On the one hand, artificial intelligence enables the development of new and innovative products. On the other hand, AI allows the company to develop products which are aligned to the needs of consumers. (Gentsch 2018, pp 66-67.)

Price

The price, which depends on demand and supply, is crucial for the success of a product. For this, it is important to find a balanced price model which is determined by prices the consumer would be willing to pay and prices which are profitable for the company. In this process, many companies use AI based algorithms that automatically change prices depending on various components such as availability and price of competitors. This dynamic pricing can be found for flight booking on the internet or on Amazon and Uber. (Gentsch 2018, pp 66-67.)

Promotion

Promotion begins with the launching of a product and the necessary advertising tools. The focus is on the buying behaviour and needs of current and potential customers. With artificial intelligence, companies have the opportunity to improve their advertising. AI based algorithms are able to analyse the buying behaviour and needs of customers and thus develop content tailored to customers, such as product recommendations and advertising. This AI based promotion is more efficient than mass advertising for companies. Furthermore, artificial intelligence has increased the success of cross-selling. Thus, additional products can be displayed to the customer in real time. (Gentsch 2018, pp 66-67.)

Placement

Placement decides where the product is sold – either online or offline, or both. Especially the ecommerce is supported by artificial intelligence. Transactions can be performed by bots when payment information and delivery address are given. Moreover, AI based systems are able to decide where to buy a product. This application is questionable if it is applied on a permanent basis because it can lead to problems in evaluating customers' buying behaviour. AI based systems are also used in offline retail. For example, some companies have introduced robots that take care of customer support in local stores. (Gentsch 2018, pp 66-67.)

People

In the marketing sector, a constant interaction with customers takes place. As already explained in the previous components, artificial intelligence enables companies to control the customers' buying behaviour and their needs. Furthermore, AI allows companies to place personalized advertising in real time. Artificial intelligence has a significant and meaningful impact on customer experience. Not only the analysis of customers is done with the help of AI, also interactions between company and customers are often performed by bots. (Thiel 2019.)

All in all, if artificial intelligence is used in marketing, companies have to consider the marketing mix including the 5 P's. The explanations above show that artificial intelligence can be useful for every component. One of the most important parts in marketing are the customers. Artificial intelligence is used to better understand the customers and thus to make marketing more efficient.

3.1.3 Application of artificial intelligence in marketing

If considering the five core tasks of marketing, nearly each one can be simplified, improved or supported by artificial intelligence-based systems. The core tasks in marketing include consumer insights, supply optimization, execution and performance management. (Bunte 2018a, pp. 15-30.)

Consumer insights involve the structured collection and analysis of data on customers, market and competitors. In this section, artificial intelligence is useful

when different data from different sources has to be managed in different markets and has to be evaluated several times by different employees. (Bünthe 2018a, pp. 17-18.) Market Logic offers the solution for this complicated and complex challenge. The US American company collects available data research and enables market research experts worldwide to access these data. Employees who initially manually summarized the results of various market research studies on insights were replaced by AI systems. These are trained by Market Logic experts to continuously improve the quality of insights. (Market Logic 2019.)

Offer optimization focuses on adapting products and services to customer needs. This task is explained with the example of a customer-friendly search function in the online shop OTTO. OTTO has created a new innovation for customer reviews through artificial intelligence-based systems. Customers have the ability to filter ratings by keywords. In addition, AI algorithms divide reviews into positive, neutral and negative groups and thus giving customers a better overview of product ratings. (Bünthe 2018a, pp. 18-20.)

Execution concentrates primarily on the implementation of marketing actions (Bünthe 2018a, p. 16). Numerous companies, such as Google and Canon, optimize their website design with the support of EyeQuant. EyeQuant analyses websites divided into categories, such as 'Landing page', and provides the customer with possible suggestions for improvement in order to make more people aware of the website. The customer has the possibility to implement the improvement suggestions. (Eyequant 2019.)

The last challenge in the marketing cycle is the performance management. This part includes control processes using KPI and control measures for budget deployment (Bünthe 2018a, p. 16). Analyx offers a software solution for this challenge: Spendworx. Through artificial intelligence-based systems, the optimal budget level and the optimal marketing mix in terms of regions, products and channels are determined to achieve your budget goals. (ANALYX 2018.)

3.2 Case examples

3.2.1 Facebook

Facebook is a worldwide used social media platform which was founded in 2004 by Marc Zuckerberg and some of his fellow students. It started as a social network for private individuals but today it is also a business network: On the one hand, companies have the opportunity to place their advertising on Facebook via self-service-ads. On the other hand, advertisers with a marketing budget of at least 10.000 US \$ have the choice to place premium ads. Both types have the same function: arouse the interest of users and acquire new customers. (Meixner 2011, pp. 47-62.)

The self-service-ads include marketplace ads and sponsored stories which can be controlled by the customer via self-service-tool. Marketplace ads comprise three components: display text, display title and display image. Sponsored stories extend the reach: The requirement is a fan page. If companies use this tool, the ads will also be visible for friends of fans. The self-service-ads are only displayed on profile pages of members and not on the start page next to the newsfeed like premium ads. (Meixner 2011, pp. 47-62.)

Premium ads are also referred to as engagement ads and are only intended for marketers with a certain budget as mentioned before. In addition to common components, such as display text and picture, those ads also include videos or surveys. Another difference is that these ads are not controllable via a self-service-tool but are controlled entirely by Facebook. (Meixner 2011, pp. 47-62.)

Even if the customer can determine how his ad is placed, Facebook determines the visibility of the advertising contribution. Facebook uses an artificial intelligence-based algorithm which selects the ads that are displayed to the user. Various factors such as popularity of the company's website, form of content and the success of past contributions have an influence on ads' visibility. (Gentsch 2018, pp. 73-75.)

Whether self-service-ads or premium ads, the target group has to be defined before advertisements are placed. Facebook offers various targeting options for the

analysis of target groups. On the one hand, advertisers can determine in which location their ads are to be delivered, in other words, in which country or city the target group lives. On the other hand, a distinction can be made between demographics such as age and gender. In addition, the target group can be narrowed down by criteria such as like-buttons, relationship status, birthdays, languages and education. (Meixner 2011, pp. 63-78.)

The objectives of Facebook ads are as follows: increase brand awareness, reach and brand consideration (Facebook business 2019). However, using Facebook ads also entails risks. First of all, a company have to consider whether Facebook ads are useful for the desired purpose or not. Advertisers should also carefully analyse the target group and the daily budget to avoid unnecessary costs. Furthermore, certain guidelines have to be observed and adhered. These include, but are not limited to, data and privacy policy, spam, subscription services, downloads and copyrights and trademarks. (Lauber 2018, pp. 39-46.)

3.2.2 Amazon

One of the world's largest online mail order companies is Amazon. Amazon applies artificial intelligence in many areas, for example dynamic pricing which responds to competition and customer demand. In addition, the company has developed a complex recommendation algorithm which not only increase the satisfaction of the buyers but also the customer satisfaction. In this case, customers are companies that sell their products through Amazon. (Gentsch 2018, pp. 73-75.)

Amazon is often a platform on which users inform themselves about products from different suppliers at different prices. Therefore, recommendation engines are useful to the user by suggesting similar products. On the other hand, it is a helpful tool for suppliers to present the variety of their product range to interested parties and to increase interest in their products. In order to improve this process, Amazon has created a new innovation with real time product recommendations. This means that related products are already displayed while the customer is

informed about a specific product. The recommendation engine algorithm differentiates between different categories. The two most common are collaborative filtering and content-based filtering. (Amazon Web Services 2019.)

Collaborative filtering is based on the interaction between users. This category includes among others the "customers who viewed this item also viewed" recommendations. The user is shown recommendations based on purchases made by other users who have viewed the same product. Artificial intelligence-based algorithms determine the similarity of the products to ensure the best possible product recommendations. (Amazon Web Services 2019.)

Besides collaborative filtering, content-based filtering is also a frequently used application. This is based only on the historical information of the user. The focus is mainly on the latest search and purchase results. The user is shown product recommendations that are similar to products he has searched for or bought, or products that the user has recently searched for but has not yet purchased. This category of recommendations is specified as 'sponsored products related to this item' recommendations. (Amazon Web Services 2019.)

Although real time recommendations improve the customer experience and strengthen the presence of sellers, this application also entails risks. As it is a process controlled entirely by Amazon, the customer does not have to pay attention to specific guidelines. Nevertheless, the customer must bear in mind that not every user perceives such recommendations as positive. (Gentsch 2018, pp. 73-75.)

Both Facebook ads and Amazon recommendations can also, contrary to their purposes, worsen customer satisfaction. The impact of these AI applications on customer satisfaction will be discussed in detail in the empirical part.

3.2.3 Chatbots

Chatbots belong beside messaging systems to the conversational commerce. The optimization of customer interaction is realized through the use of artificial intelligence. The introduction of e-commerce has pushed communication between customers and retailer into the background. This was only possible via telephone

or email, which was either associated with costs or longer response time. The introduction of AI-based systems enables individual real-time communication with customers online. (Gentsch 2018, pp. 83-86.)

The abilities of chatbots have progressed with the development of artificial intelligence. In the beginning, bots were able to respond to simple, repetitive requests. Nowadays, chatbots have evolved enormously and it is often difficult to differentiate between a human and a machine. An example of this is the use of personal assistants, such as Siri, which is available to Apple users. Whereas the use of Siri is still associated with difficulties in speech recognition, Viv is a personal assistant that can be used as an app for Apple users. This app improves the interaction between a smartphone and its user. The user has the possibility not only to control his smartphone with Viv as a personal chatbot but also to feel like communicating with a person in real life. (Gentsch 2018, pp. 87-94.)

Chatbots are often used in e-commerce to answer questions from consumers. Most chatbots are programmed to respond to specific keywords. The bots from eBay, Lidl and Pizza Hut work the same way. If you ask the chatbot at Pizza Hut for deals, for example, you will get the latest deals as an answer. These chatbots are limited to answer easy customer questions such as product search or order questions. (Quoc 2017.)

The online retailers H&M and Sephora, for example, go a step further when it comes to using chatbots. Their bots can be used via the online messenger app Kik. This enables customers not only to answer simple questions, but also to offer personalized buying and style advice. Customers give the chatbot their needs and wishes and the chatbot uses further questions to find out what best suits the customer. This type of chatbots is comparable to a local buying advice. (Quoc 2017.)

The examples above show that the development of chatbots is progressing. However, this AI marketing tool is also associated with benefits and disadvantages. The use of chatbots is characterised by a significant advantage: the real time communication. Due to development deficits, it is possible that chatbots do not

provide the desired information and customers have to use traditional means of communication such as email and telephone. (Gentsch 2018, pp. 95-96.)

4 Customer satisfaction

Customer satisfaction is an important part of marketing practice. Customer satisfaction links the activities of a company with customer behaviour. The company ensures that customer needs and expectations are satisfied. Possible reactions of the customer to the company's activities are repeated and additional purchases, recommendations and complaints. Accordingly, the success of a company depends on customer satisfaction. (Homburg 2012.)

4.1 Development of customer satisfaction

The confirmation/disconfirmation paradigm is used as a basic model for the development of customer satisfaction. This model was developed in the 80s and is still in use today. The CD paradigm is an integrative framework that explains the development of customer satisfaction. (Krüger 2016, pp. 103-148.)

The core statement of the model consists of two main elements: expected performance and perceive performance. From these elements a confirmation or a disconfirmation is created which provides information about customer satisfaction. In order to be able to explain the model in detail, the confirmation/disconfirmation paradigm is presented in Figure 3. (Homburg 2012, pp. 20-23.)

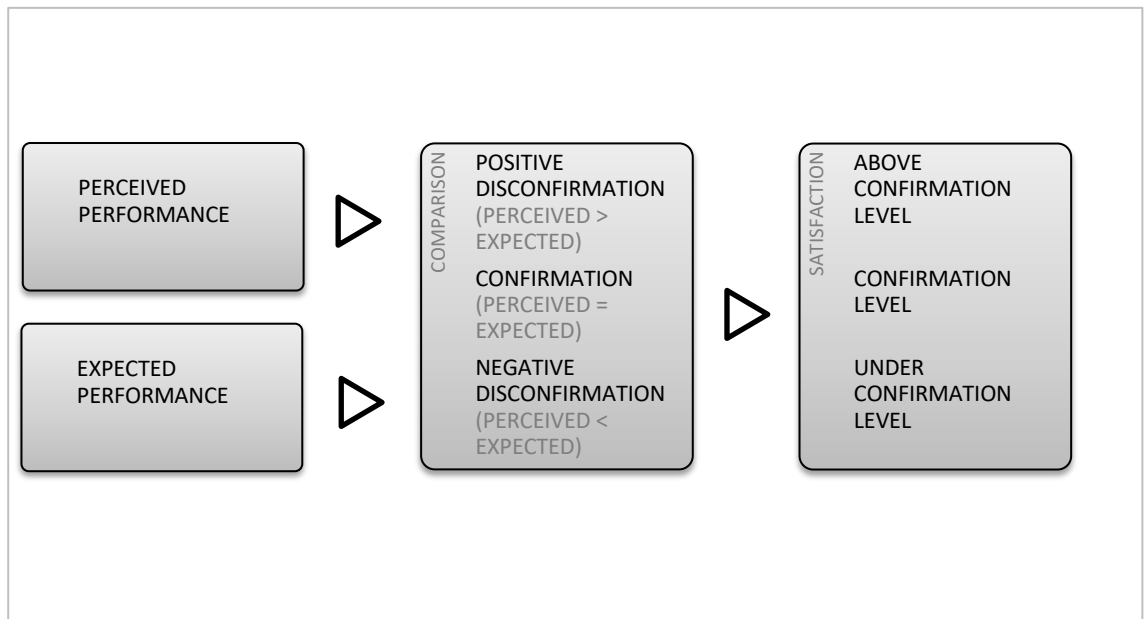


Figure 3. Presentation of the confirmation/disconfirmation paradigm (Homburg 2012, pp. 20-23.)

The perceived performance is the actual experience of customers when they use a service or a product. A distinction is made between objective and subjective performance. The objective performance is the actual performance of a product or service. All customers have the same objective performance, which differs from subjective performance. The subjective performance depends on different perception effects and is thus different for each customer. The subjective performance is more decisive for the customer satisfaction and is preferred in the confirmation/disconfirmation paradigm to the objective performance. (Homburg 2012, pp. 20-23.)

In comparison to the perceived performance is the expected performance. The expected performance is a certain comparison standard which includes expectations, experience norms and ideals. Experience norms are based on the customer's experience with the same or similar services or products. (Homburg 2012, pp. 20-23.)

The comparison describes the relationship between perceived performance and expected performance. Three different constructions can occur: confirmation, positive disconfirmation and negative disconfirmation. If the perceived performance corresponds to the comparative standard, a confirmation results. If the

perceived performance is above the comparative standard, a positive disconfirmation occurs. Conversely, a negative disconfirmation is the result. (Homburg 2012, pp. 20-23.)

The customer satisfaction is the result of the cognitive comparison between the perceived performance and the expected performance. The confirmation level occurs when the perceived performance is equal to the expected performance. If the value of the actual perception is higher than the comparative standard, the satisfaction increases. If the perceived performance is below the expected performance, dissatisfaction arises on the part of the customers. (Homburg 2012, pp. 20-23.)

The model was further developed during the last few years. According to recent findings, the emotional reaction of customers has an influence on customer satisfaction and was added to the confirmation/disconfirmation paradigm. (Homburg 2012, pp. 20-23.)

4.2 Effects of customer satisfaction

The effects of customer satisfaction are based on different models. These models describe the consequences of customer satisfaction or dissatisfaction. In the following the most important models are presented: equity theory, theory of instrumental conditioning and social learning theory. (Homburg 2012, pp. 36-43.)

Equity theory

The equity theory was developed by John Stacey Adams and focuses on the equity of exchange relationships. This theory describes that individuals compare produced input and received output with those of other individuals which is presented in an input-output-ratio. The input includes the individual commitment and the search of information. In contrast, the output mainly comprises satisfaction and remuneration. Equity is ensured when the input-output-ratio of the exchange partners is equal. If the input-output-ratio differs from one another, there will exist inequity. Inequity is perceived both in the case of disadvantage and in the case of favouritism. (Raab, Unger & Unger 2010, pp. 332-347.)

This theory can be applied to customer satisfaction. There are two possibilities: Either the customer compares his input-output-ratio with that of the supplier or with those of other customers of the same supplier. In this case, the input comprises the purchase price, waiting times and travel expenses. The output focuses mainly on the individual customer satisfaction. Equity exists for the same ratio. Inequity occurs when input-output-ratios are different. Even if the customer benefits, this means the customer is very satisfied but pays a comparatively low price, inequity arises. This leads to the equity theory's conclusion: Customers are willing to pay a higher price for very good services. In order to achieve equity, the customer can terminate the relationship, vary the input or influence the provider. (Homburg 2012, pp. 36-43.)

Theory of instrumental conditioning

The theory of instrumental conditioning was created by Burrhus Frederic Skinner who discovered that consequences of past behaviour have a significant effect on a person's future behaviour. On the one hand, behaviours that have been rewarded in the past will be maintained. On the other hand, punishments for previous behaviours lead to behavioural changes. Behaviour that is neither associated with punishment nor reward is not retained in memory. (Rinck, Becker 2011. pp. 112-118.)

The theory of instrumental conditioning is applicable to customer satisfaction. Based on this theory a process model of learning was developed which reflects the effects of customer satisfaction. The process begins with the selection of a service, whereby various criteria are included in the decision. These criteria can be: intuition, habit, brand loyalty, performance criteria and price. During the use of the service, it shows whether the criterion has contributed to the selection of a suitable service. If the result is satisfaction, the customer will take the same criterion for a further selection of the service and thus remain loyal to the provider. If dissatisfaction arises, the customer will take a different procedure for the next time which causes disloyalty. (Homburg 2012, pp. 36-43.)

Social learning theory

The social learning theory is based on the following basic assumption: People learn new attitudes and behaviours by observing the behaviours of other people. They follow certain role models, such as older siblings, superior and famous personalities. The customer recognizes the positive consequences that the role model receives through the use of a service and also wants to have these advantages. These positive consequences lead to the loyalty of the role model and thus the customer also strives for loyalty towards the same provider. (Homburg 2012, pp. 36-43.)

4.3 Measurement of customer satisfaction

Customer satisfaction is a very complex issue from customer needs to customer retention, Thus, a measurement instrument for customer satisfaction has to include customers' expectations, experiences and loyalty. In 2003, Fred Reichheld, together with Bain & Company and Satmetrix, developed a key figure that measures customer satisfaction with regard to all its factors. This key figure is determined by the following question: "How probable is it that you will recommend this company to a friend or colleague?" (Greve, Benning-Rohnke 2010, p. 42) The recommendation of customers is used as an indicator for their satisfaction. The recommendation question has the following advantage: The rational as well as the emotional level of the relationship between customer and company are included. The customer satisfaction is influenced on a rational dimension by quality of offers, services and prices. In contrast, the emotional level exists from the feeling that the company knows, understands and appreciates customers. (Greve, Benning-Rohnke 2010, pp. 41-54.)

The Net Promoter Score is determined using a scale. The customers have the possibility to determine the recommendation on the basis of a scale from 1 (very unlikely) to 10 (extremely likely). The NPS can also be determined with other questions regarding to customer satisfaction. On the basis of this evaluation, customers can be divided into three groups. The first group are the promoters, the so-called supporters. This group consists of loyal customers who are satisfied with the company's performance. They would always buy from the company and

recommend it to their friends. The promoters are the customers who are on the scale at nine or ten. The next important group are the detractors or critics. This group includes customers who have had bad experiences with the company and would not recommend the service to others. They are on the scale between one and six. The last group is referred to as the passive or neutrals because these customers have neither positive nor negative experiences with the company. Therefore, they are not taken into account for the success of the company. After all customer evaluations have been collected, the net promoter score is determined by the result of promoters subtracted with detractors. The result varies between +100 percent and -100 percent. The more positive the result, the better the relationship between customer and company, which means the higher the customer satisfaction. In addition to this scale, an open-ended question can be asked to allow customers to comment on their ratings. Figure 4 shows the Net Promoter Score in order to understand the concept as a measurement tool. (Greve, Benning-Rohnke 2010, pp. 41-54.)

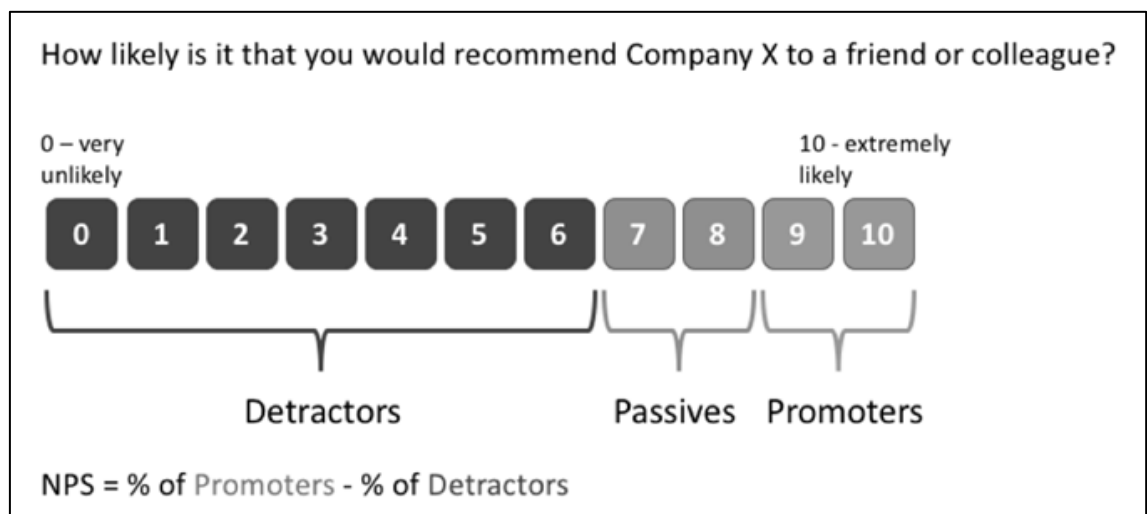


Figure 4. "Illustration of the Net Promoter Score" (Confirmit AS 2019.)

The net promoter score is very often used in practice to determine customer satisfaction. The NPS is characterized by three main advantages. Firstly, the company receives a holistic feedback from the customer which can be implemented in a timely and personalised manner. The next advantage relates to quantity. The NPS involves many customers because it is a simple tool. This includes the third

advantage, which means that the net promotor score is to be understood by everyone as a metric and can be used uniformly. (Greve, Benning-Rohnke 2010, pp. 41-54.)

4.4 CRM as control tool

Companies have to be customer-oriented in order to differentiate themselves from their competitors. Customer relationship management is a concept that focuses on the relationship between companies and their customers. CRM includes the improvement of existing customer relationships as well as the acquisition of new customers. However, the main focus is on customer retention and the personal benefit for the customer. Customer relationship management affects all business areas of a company and leads to the fact that the company can develop its long-term strategies and goals in the interest of its customers. This concept consists of three stages: customer acquisition/customer recovery, retention/intensification and termination. As CRM's focus is on customer retention, the second stage is therefore the most important one. The retention takes into account customer loyalty, cross-/up-selling and customer recommendation. (Rapp 2005, pp. 40-57.)

Customer relationship management ensures that a company's range of services is successfully aligned with customer expectations. On the one hand, CRM processes make an important contribution to increase customer satisfaction. On the other hand, the implementation of a CRM concept can also lead to the termination of a business relationship with the result that customer satisfaction decreases. However, the basic goal of customer relationship management is to increase customer satisfaction even if there is a partial reduction in customer satisfaction during the course of the process. (Homburg 2012, pp. 380-384.)

4.5 Customer satisfaction in sales funnel

In recent years, various interpretations of the sales funnel model have been published. This concept is based on Russel H. Colley, who developed the sales funnel model in 1961. The sales funnel model causal chain which means that each stage is followed by the next stage. The sales funnel model according to Colley consists of four phases: awareness, comprehension, conviction and action. Over

the years, this model has been further developed extended by additional phases. The modern sales funnel consists of awareness, interest, consideration, intent, evaluation and purchase. These phases describe a more detailed process of the buyer. In every stage of the sales funnel, the satisfaction of customers needs to be ensured so that they can achieve the next stage. (Rutschmann 2018, pp.30-32.)

Reviewers criticise the stages of the sales funnel as it is only focused on pre-purchase and purchase phase. As a result, many companies use the concept of the customer journey which has similarities to the sales funnel. The crucial difference is that this concept also includes the post-purchase phase. This phase is important for the company because it is decisive for repurchase, cross selling or termination of the relationship. This phase depends on customer experience in previous phases. (Richardson 2010.)

The relationship between customer satisfaction and sales funnel or customer journey in relation to AI marketing applications will be presented in the empirical part.

5 Online retail

‘E-commerce’ means electronic commerce and describes the trade that takes place in the World Wide Web. E-commerce is also referred to as online retail whereby the distinction between offline and online retail is discernible. Nowadays there is no longer a clear distinction between online and offline retail. Most companies are referred to as ‘bricks’ because they are represented both offline and online. This form combines the advantages of offline retail as well as online retail. Online customers have an immense choice on the internet and the opportunity to buy products around the clock. In addition, they find many product reviews and consumer opinions online. In contrast to this, customers who buy in local stores have the chance to touch and try the products. The locality also includes a face-to-face adviser. (Hayes 2019.)

The Internet is used by 1.6 billion people worldwide. The introduction of social media, which has an increasing influence on purchasing decisions, has created

web 2.0. Social platforms such as Facebook, Instagram or snapchat are used by internet users daily. This is also an advantage for companies. Companies can be represented on such platforms by their own profile. In addition, advertisements can be placed on social media to attract more customers. (Heinemann 2010, pp. 5-15.)

The internet is undergoing a transformation from web 2.0 to web 3.0. Web 3.0 is influenced by artificial intelligence. Machines should be able to understand content created by humans. Many platforms, such as Amazon or Facebook, use AI systems to improve their processes and also to increase the customer experience. (Heinemann 2010, pp. 5-15.)

6 Quantitative research method

This chapter explains the quantitative research method which is used for the empirical part. In the following the content of the method will be explained. In addition, how the researcher applied this method for the study is described.

The research process started with the definition of the research problem and the research plan which was explained in the topic analysis. This created the research questions. Then a decision about the data collection was made. Due to the complexity of the topic, the quantitative method was chosen. The quantitative research method is suitable for a large number of respondents because this method describes the phenomenon due to numeric data. A questionnaire is used for the data collection. After the questionnaire has been completed, the collected data has been analysed and reported. (Saunders, Lewis & Thornhill 2009.)

On the one hand the validity and reliability depend on the structure and conclusiveness of the questionnaire and on the other hand on the interviewees. The questionnaire was created in correlation to the research questions. The validity and reliability of the questionnaire can only be assessed after evaluation. With regard to the interviewees, possible errors that might manipulate the survey results can be identified in advance. However, these errors cannot be proven after evaluation. In principle, it can be assumed that the interviewees answer the ques-

tionnaire with a clear conscience. Nevertheless, it is possible that the respondents fill in the questionnaire dishonestly. It is also possible that technical problems may arise while the questions are being answered. Furthermore, it is possible that the participant does not understand the question. Since the questionnaire is in English and participants with different mother tongues were able to complete it, an error in understanding the translation may occur. A misunderstanding regarding the content of the questions cannot be excluded either.

The target population of this study is unlimited. On the one hand, it is mainly limited to students and employees of Anhalt University of Applied Sciences. Furthermore, this questionnaire was published in Facebook groups of Anhalt University of Applied Sciences, Saimaa University of Applied Sciences and Goethe University Frankfurt. Thus, the target group is extended to all members of these groups. Furthermore, it cannot be excluded that the questionnaire was forwarded to third parties, so that the target group cannot be clearly defined. The survey will be conducted from 11 June 2019 to 1 July 2019.

The questionnaire is divided in five different parts. The first part consists of the introduction and general questions. The introduction provides an overview of the researcher and the study. In addition, the introduction is illustrated with visualizations to give the respondents a precise idea of AI marketing tools used in this study. The general questions allowed the researcher to gain an overview of the previous knowledge of the interviewees.

The second part concentrates on the Facebook ads. The third part focuses on the Amazon recommendations and the fourth on the chatbots. All three parts consist of questions to clarify whether the respondents use the respective tool, how often and how satisfied they are with different aspects. For some questions, the net present value method was used to obtain more accurate results in regard to customer satisfaction.

The last part includes basic questions such as age and occupation. These are used to identify similarities and differences with regard to the basic data in the evaluation.

All in all, as a quantitative research method, the questionnaire makes it possible to obtain many answers and thus to answer the research questions more precisely.

7 Empirical part

173 participants took part in the survey 'Influence of artificial intelligence on customer satisfaction in online retail'. The group of participants was divided approximately equally into male and female, with the female share outnumbering 5.8% as can be seen in Figure 5.

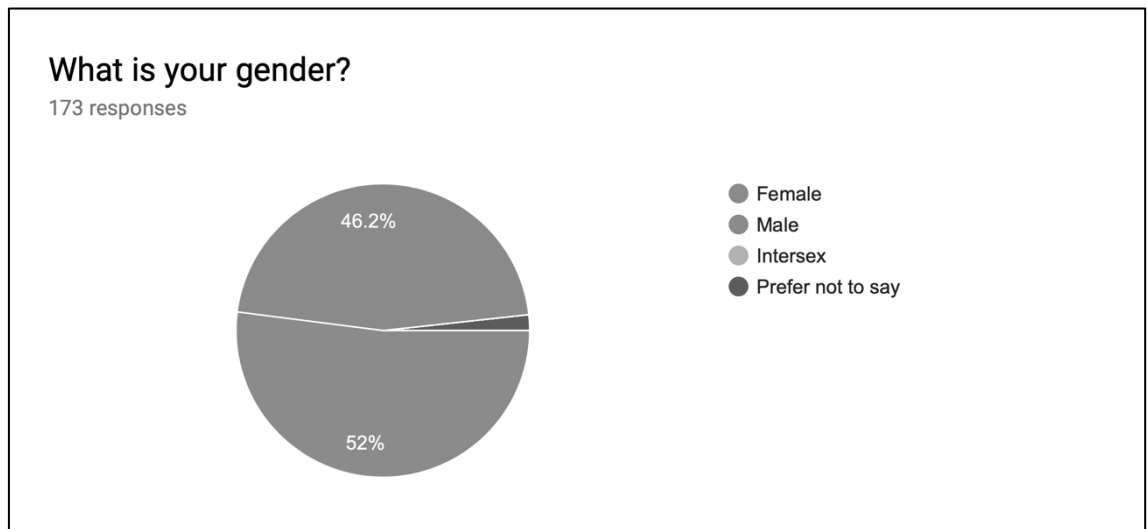


Figure 5. The gender of respondents

The age group ranges from 17 to 75 years. The majority of the interviewees are limited up to 29-year-olds with approximately 65.3%. This group is referred to in the evaluation as the so-called 'Internet generation'. This designation is due to the introduction of the Internet for commercial purposes in 1990. Since this group grew up with the Internet, it can be assumed that they have a different understanding of how to use the Internet than the group of 30-year-olds and older.

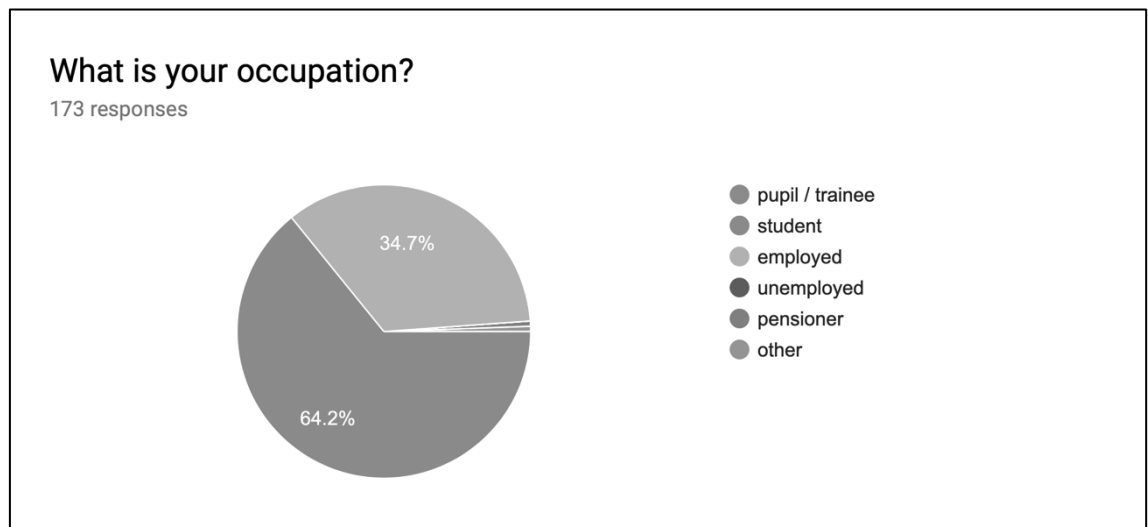


Figure 6. The occupation of respondents

Figure 6 shows what kind of occupation the interviewees have. The majority of the participants are students with about 64%. 34% are employed and the rest are pensioners or engaged in other activities.

Approximately 92.5% of respondents live in Germany. In addition, Finland, France, Spain, Italy and the Ukraine were also mentioned as places of residence. The detailed results of this survey are presented in the appendix in form of an excel table.

The aim of this survey is to answer the research questions by interpreting the given responses. Before a result for the main research question can be achieved, the sub-questions will be explained and interpreted in the following with the results of the respective questions in the questionnaire. In order to gain a better understanding, the main research question and the sub-questions are listed again below.

- **How does AI marketing influence customer satisfaction?**
- How do Facebook ads influence buying process?
- How do Amazon recommendations influence buying process?
- How do chatbots influence buying process?

Customer satisfaction is the result of the individual buying process of each customer. In order to clarify customer satisfaction depending on artificial intelligence-based applications, the influence of the selected AI-based applications on buying

behavior has to be described first. Customer satisfaction can be positive as well as negative.

7.1 Facebook ads

Approximately 58% of the 173 respondents use Facebook. Three quarters of these Facebook users have already come into contact with Facebook ads. It can be assumed that the remaining quarter also gets Facebook ads displayed during use, but they do not keep it directly in mind. Besides, the survey shows that a lot of respondents have no idea how many ads are displayed to them. This result indicates the success of these ads because the primary goal is to make users aware of the ads. That is the only way to take further steps, such as clicking on the displayed ads. Since Facebook is free for users, it is mainly financed by customers who placed such ads. The more successful the ads, the more satisfied these customers are and the higher the company's success. However, just because Facebook's customers are satisfied does not mean that their customers are satisfied with Facebook ads as well. The survey will have a closer look at the users' satisfaction:

How satisfied are users with Facebook ads and how does this satisfaction influence the buying behaviour?

Facebook ads are often in context with previous product searches, which shows the result of a question listed in this survey. The next question relates to the consequences of Facebook ads in relation to buying behaviour.

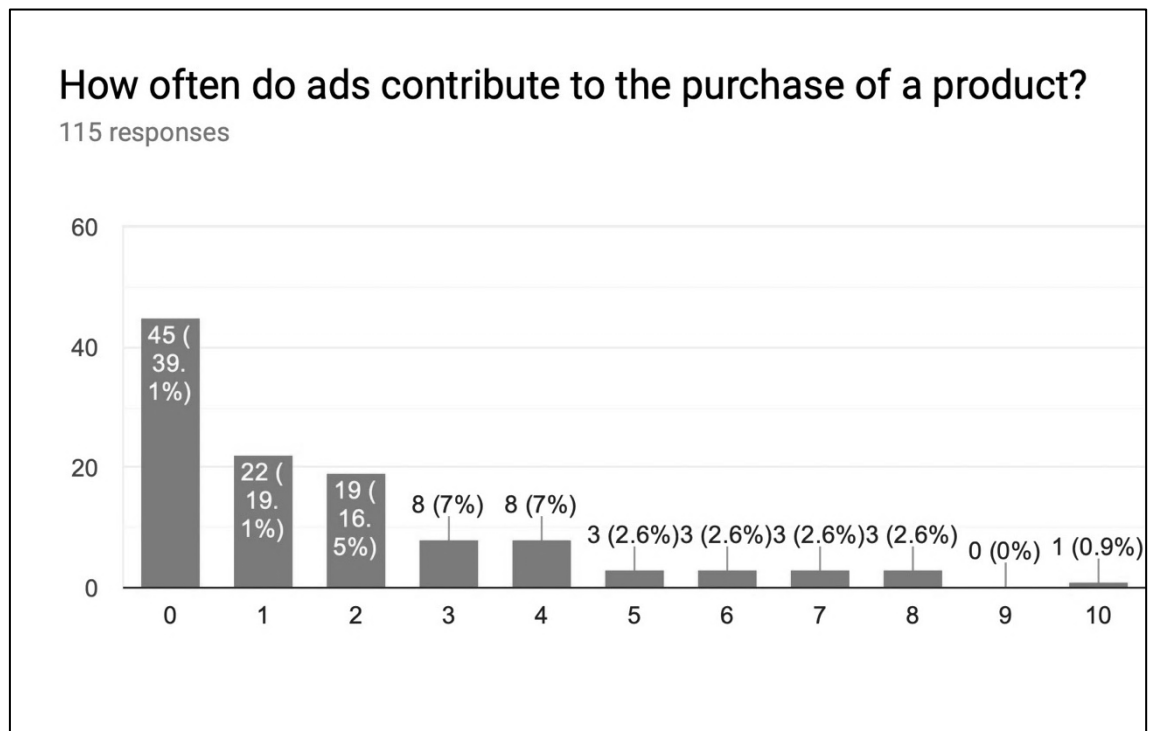


Figure 7. Frequency of how often ads contribute to a purchase

Figure 7 clearly shows that the displayed Facebook ads rarely cause a purchase. The reason for this result can be inferred from a previous question. The question about how often users are interested in the ads also shows that respondents are rarely interested in Facebook ads. The reasons for this lack of interest can have various causes. One possibility would be that the user is no longer interested in a previously searched product, but it is still displayed on Facebook. Even if artificial intelligence is already very advanced, it can only refer to the behaviour of users, not to their emotional feelings. Thus, the artificial intelligence from Facebook cannot know whether the customer is still interested in the product they were looking for or not. This can lead to Facebook ads generating a lack of interest on the part of the user. The conclusion to be drawn from this is that these ads do not directly influence buying behaviour since in most cases it does not lead to a purchase. In order to be able to determine the influence on buying behaviour, the satisfaction of users with Facebook ads has to be examined more closely. Therefore, the users' satisfaction with the frequency and content of Facebook ads will be considered in the following.

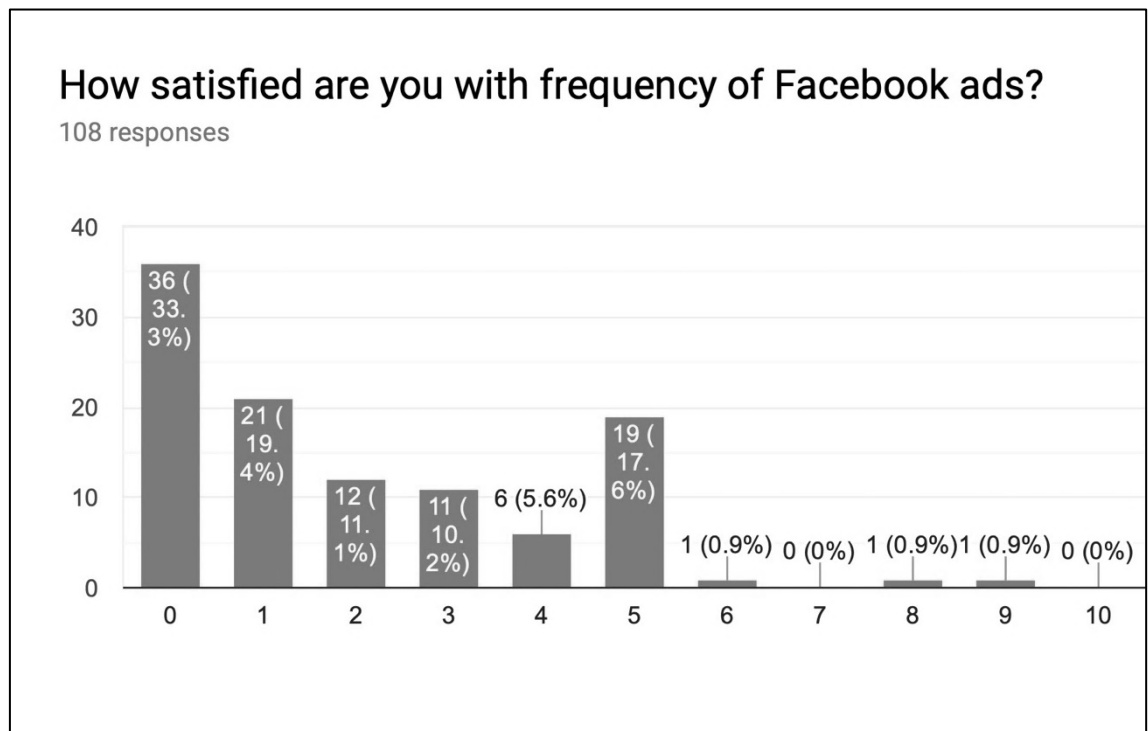


Figure 8. Respondents' satisfaction with frequency of Facebook ads

First, the frequency of Facebook ads is examined as a factor for satisfaction as described in Figure 8. The net promoter score concept was used for the questions regarding satisfaction. As already explained in the theoretical part, the interviewees who are on the scale 0-6 are called detractors. In comparison, those on the scale of 9-10 are called promoters. In the concept of the net promoter score the scale values 7 and 8 are not considered. The chart shows that the NPS would be in the negative range in terms of the frequency of Facebook ads. The reason for this frequency can have two possible origins. On the one hand it is possible that the Facebook ads are displayed too often and on the other hand there is the option that they are shown too rarely. It cannot be ruled out that the respondents are generally dissatisfied with the existence of Facebook ads and would therefore prefer not to receive any at all. This result of dissatisfaction indicates that buying behaviour is very rarely positively influenced. It is even possible that the buying behaviour is negatively influenced. Users may associate the negative impression of Facebook ads with the products promoted by ads. This has a negative impact on buying behaviour and the customer becomes less interested in the product. All in all, the frequency has a crucial impact on users' satisfaction regarding to

Facebook ads. The next chart refers to the content quality of displayed Facebook ads.

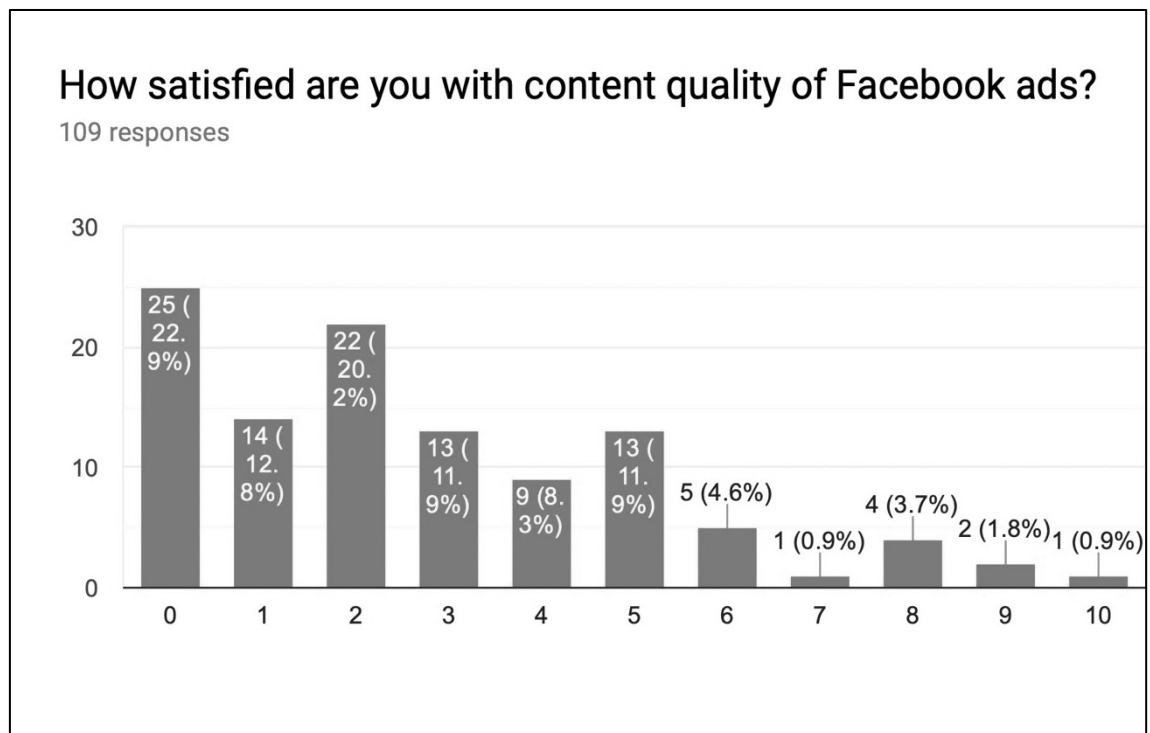


Figure 9. Respondents' satisfaction with content quality of Facebook ads

In addition to frequency, the content quality of Facebook ads is also important for customer satisfaction. Figure 9 also illustrates that the net promoter score would be in the negative range, and thus dissatisfaction prevails. Basically, the ads promote a certain product, service or event. Often these are connected to the user. However, this connection can never be clearly explained. The results of the questionnaire show that in approximately 28% of cases the ads refer to previous product searches whereas 49% of the respondents did not even answer this question. First of all, the factors of content quality have to be considered more closely. These can be different for each user and depend on individual preferences. It can be assumed that most respondents associate content quality with the product being advertised so the dissatisfaction also depends on the product. Artificial intelligence makes no difference whether users have informed themselves once about a product or in a more intensive way and cannot decide how profound the interest is. Thus, in many cases ads are displayed that do not or no longer corre-

spond to the user's interest, which ultimately leads to dissatisfaction with the content quality. This analysis shows that even the content quality factor does not have a positive influence on purchasing behaviour in most cases.

After a closer look at individual questions, the following conclusion can be drawn. The respondents of this survey are dissatisfied with the Facebook ads in terms of both frequency and content quality. This conclusion also explains the result to the question whether the ads contribute to a purchase. Nevertheless, it is not clearly proven that dissatisfaction has a negative influence on buying behaviour. There are two possible cases. On the one hand, Facebook displays ads in which the user is no longer interested in. Those Facebook ads do not correspond with the actual interest of the user. It can be assumed that the buying process for advertised products have already been completed before Facebook has displayed the ads. Thus, the buying behaviour for such products cannot be influenced negatively. The other option considers Facebook ads that show products that display the interest of the user. If the results of the survey are examined in relation to this possibility, Facebook ads have a negative influence on the buying behaviour of users.

All in all, the results of the graphs described above show that dissatisfaction is the result of displayed Facebook ads. Nevertheless, different cases have to be differentiated which lead to different results. Basically, users are dissatisfied with the ads shown, but this does not always cause a negative influence on buying behaviour. However, it must be clearly stated that buying behaviour is only positively influenced in rare cases.

7.2 Amazon recommendations

Approximately 88% of respondents use Amazon as an online retailer, but the frequency of purchases depends on each individual customer. Based on the survey results, all frequency ranges of the scale are occupied, and respondents estimate their purchases from very rare to very often. This assessment depends on the perceptions of the respondents. What one person regards as rare, the other one may consider as frequent. Nevertheless, this question is significant and

shows that Amazon as an online retailer is used to varying degrees by its customers. In order to analyse the influence of Amazon recommendations on the buying behaviour, a distinction has to be made between the different types of recommendations. On the one hand, customers have the opportunity to find products through the 'customers who viewed this item also viewed' recommendations. In addition, 'sponsored products related to this item' recommendations support customers in finding similar products. In order to be able to analyse the influence of Amazon recommendations on buying behaviour, the following question has to be answered beforehand:

How often do the 'customers who viewed this item also viewed' recommendations and the 'sponsored products related to this item' recommendations result in a purchase?

The 'customers who viewed this item also viewed' recommendations are familiar to about 96% of respondents. In this case, the frequency of use is also very different, and respondents divide approximately equally between the scale values of very rare to very often with slight tendency to the 'very rare' one. In contrast, the following graph illustrates that there is a more significant tendency in the question of purchase.

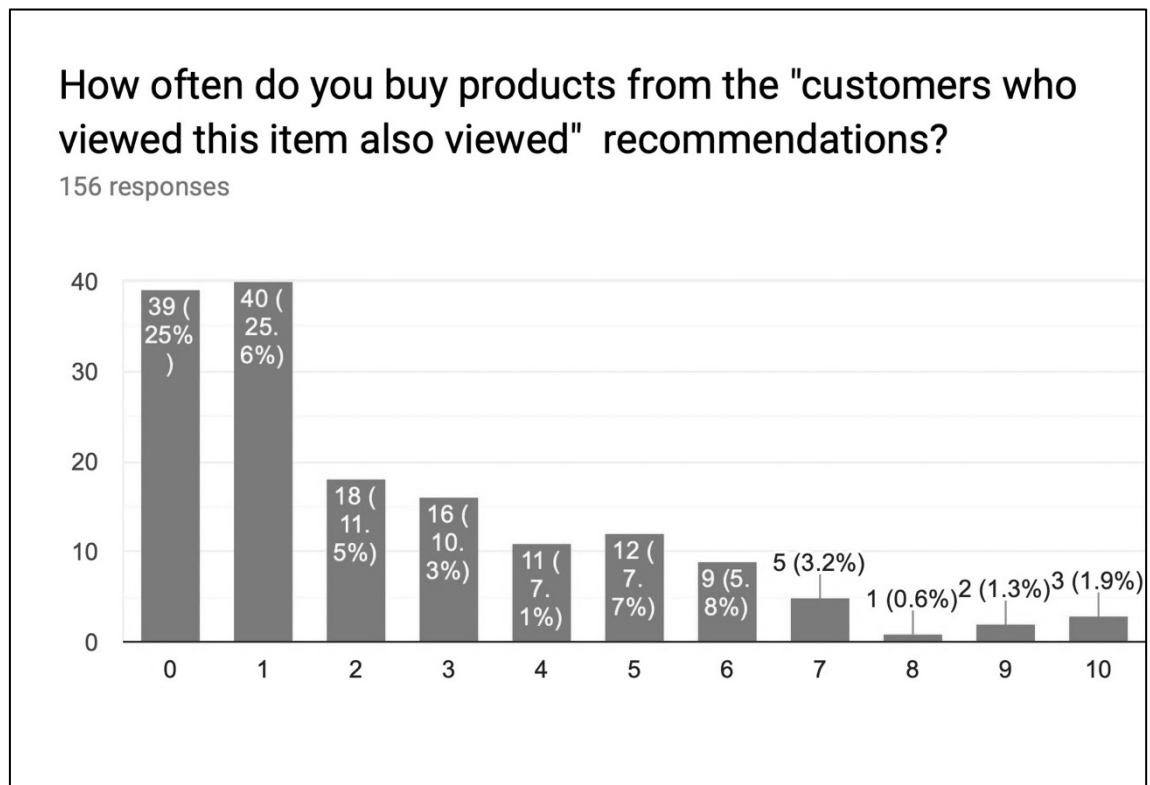


Figure 10. Frequency of how often a product from the “customers who viewed this item also viewed” recommendations is purchased

Figure 10 shows a clear shift of the focus to the side 'very rare'. Less than 13% of those surveyed buy products from the ‘customers who viewed this item also viewed’ recommendations. There are several reasons for this behaviour. The most obvious reason, however, is that the products recommended by Amazon are not in the customer's interest. These recommendations refer much more to the interests of other customers. This does not mean that different customers have the same interest in other products just because they are looking for the same product. However, the survey shows that customers are using the recommendations, but very often the products are not satisfactory.

The ‘sponsored products related to this item’ recommendations are less well known. Only 66% of respondents are aware of this type of Amazon recommendations. The use of these recommendations is much rarer, as can be seen from the results, which has shifted its focus strongly to 'very rare'. The result of this graph is comparable to the following chart:

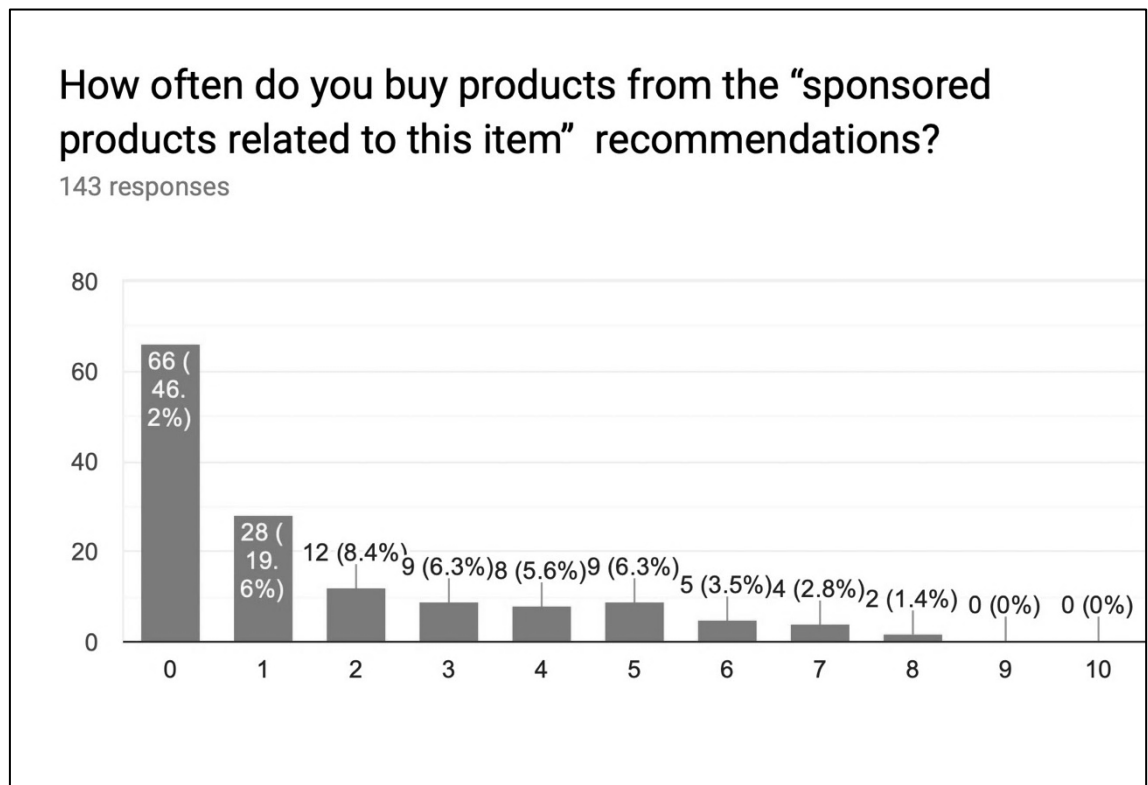


Figure 11. Frequency of how often a product from the “sponsored products related to this item” recommendations is purchased

Figure 11 illustrates a clear tendency to the right, which means that the most customers do not buy products from the ‘sponsored products related to this item’ recommendations. This result is a consequence of the previous question because the result is approximately the same. More than 80 percent of respondents rarely use these recommendations. In order to find out the reason for the result of the above diagram, it is necessary to investigate the reason for the limited use of this type of Amazon recommendations. Again, there are different reasons depending on the individual needs of the customer but there is one obvious reason. Those recommendations include products which are almost identical to the product the customer is looking for, i.e. which have the same function. In addition, these recommendations also cover products that can be used in addition to the desired product. If customers are only interested in the product itself, they ignore the recommendations that refer to complementary products. This is a possible explanation for the rare use and purchases of the ‘sponsored products related to this item’ recommendations.

After the Amazon recommendations have been considered and analysed individually, the customer satisfaction with the recommendations generated by Amazon has to be clarified in order to be able to draw a conclusion about the influence on buying process:

How satisfied are customers with Amazon recommendations and how does this satisfaction influence the buying behaviour?

Two factors have to be considered in order to draw conclusions about customer satisfaction. On the one hand, the number of recommended products and, on the other hand, the content quality of the recommendations have to be determined.

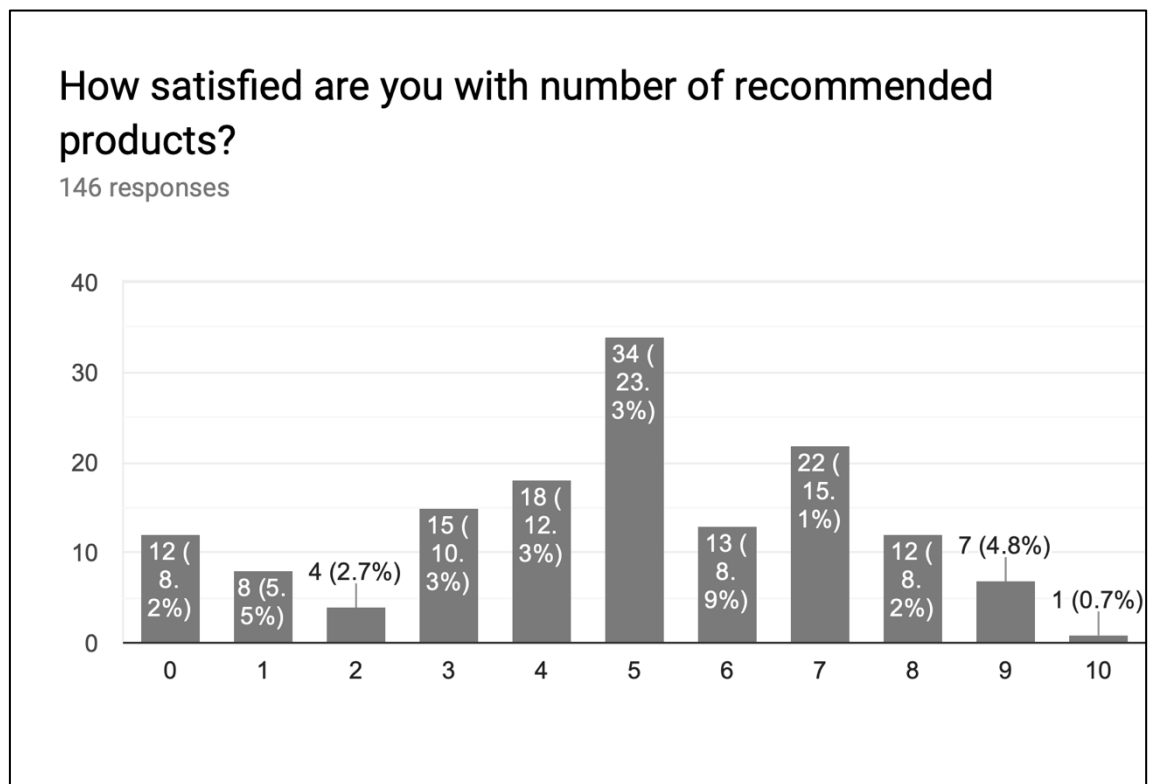


Figure 12. Respondents' satisfaction with number of recommended products

Figure 12 illustrates that the net promoter score would obviously be in the negative range, since the majority of respondents chose the scale 0-6 and are therefore to be classified as detractors. In contrast, not even 6% decided for the last two scale values. The result shows that the detractors are clearly higher than the promoters. For this result of dissatisfaction two factors have to be considered. On the one hand, there is the possibility that customers are dissatisfied because the number of recommended products is not enough. On the other hand, it is also

possible that the dissatisfaction is caused by a too high number. However, the reason may be different, but the result is the same: The number of recommendations results in customer dissatisfaction. This result also has an influence on buying behaviour. As the previous graphs of purchases show, products from both categories are rarely purchased. These results clearly indicate that the number of recommendations has no positive impact on the buying behaviour of customers.

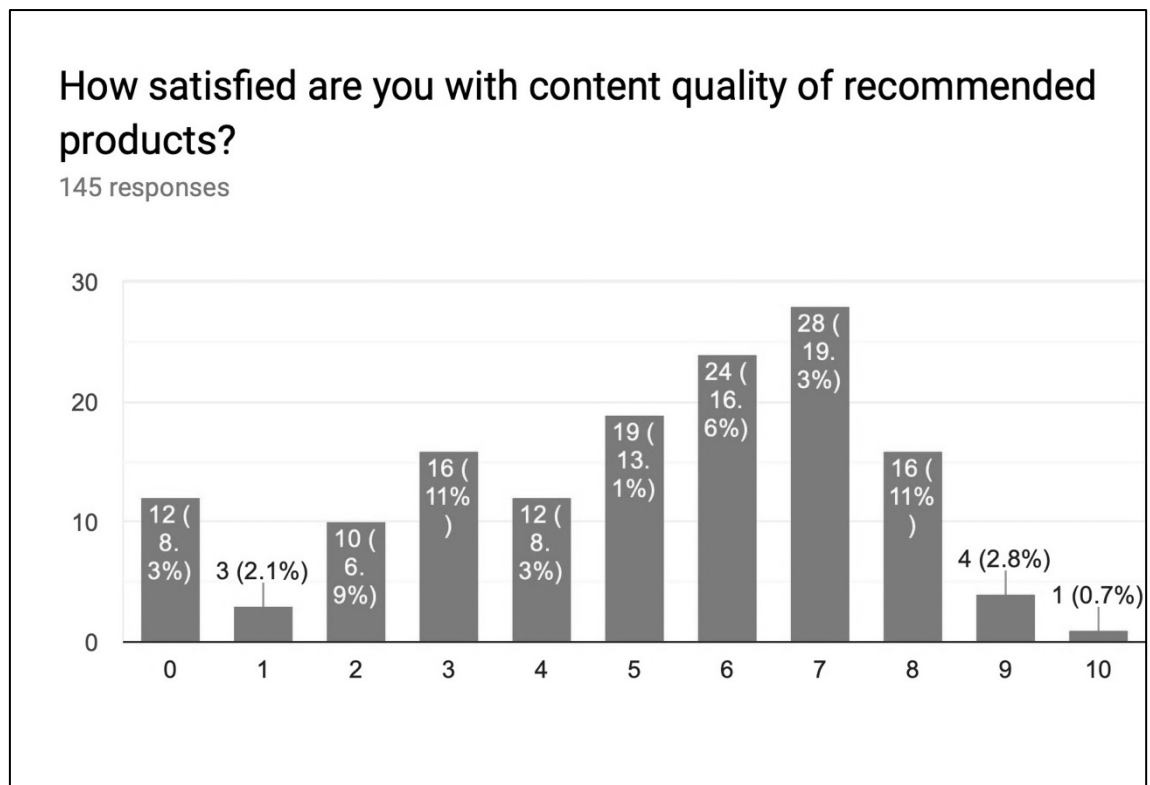


Figure 13. Respondents' satisfaction with content quality of recommended products

Figure 13 shows a slight tendency towards the side of satisfaction. Nevertheless, it can be recognized that the share of promoters is significantly lower than the share of detractors. This means that the net promotor score is in the negative range, which indicates customer dissatisfaction. Content quality of the recommendations refer mainly to the type of product recommended. Dissatisfaction may arise if the recommended product does not match the interest of the customer. Possible factors are price differences, visual differences or substitution of products. In this case content quality has no positive effect on buying behaviour, but a negative influence is possible.

In summary, it can be stated that buying behaviour is not positively influenced by Amazon recommendations, as there is predominantly dissatisfaction. The Amazon recommendations are controlled by artificial intelligence, as explained in the theoretical part. The algorithms used refer only to the customer's product search and not to their desires or needs. As a result, the recommendations may not be satisfactory.

7.3 Chatbots

More than 60% of respondents have already used chatbots. Nowadays, chatbots have an important role in the buying process and influence customers' buying behaviour. Chatbots are useful in the pre-purchase decision as well as after in the post-purchase stage. Even though this type of communication between customer and company has been established for years, only about 45% of respondents would prefer this form of communication. In order to analyse the influence of chatbots on the buying process, the following question has to be answered first:

How satisfied are customers with chatbots and how does this satisfaction influence the buying behaviour?

Customer satisfaction with chatbots depend on the quality of the chat as well as on response time. The quality of the chat includes factors such as understanding the problem, communication and finding solutions. The following figure shows to what extent the respondents were satisfied with the quality of the chatbots used so far.

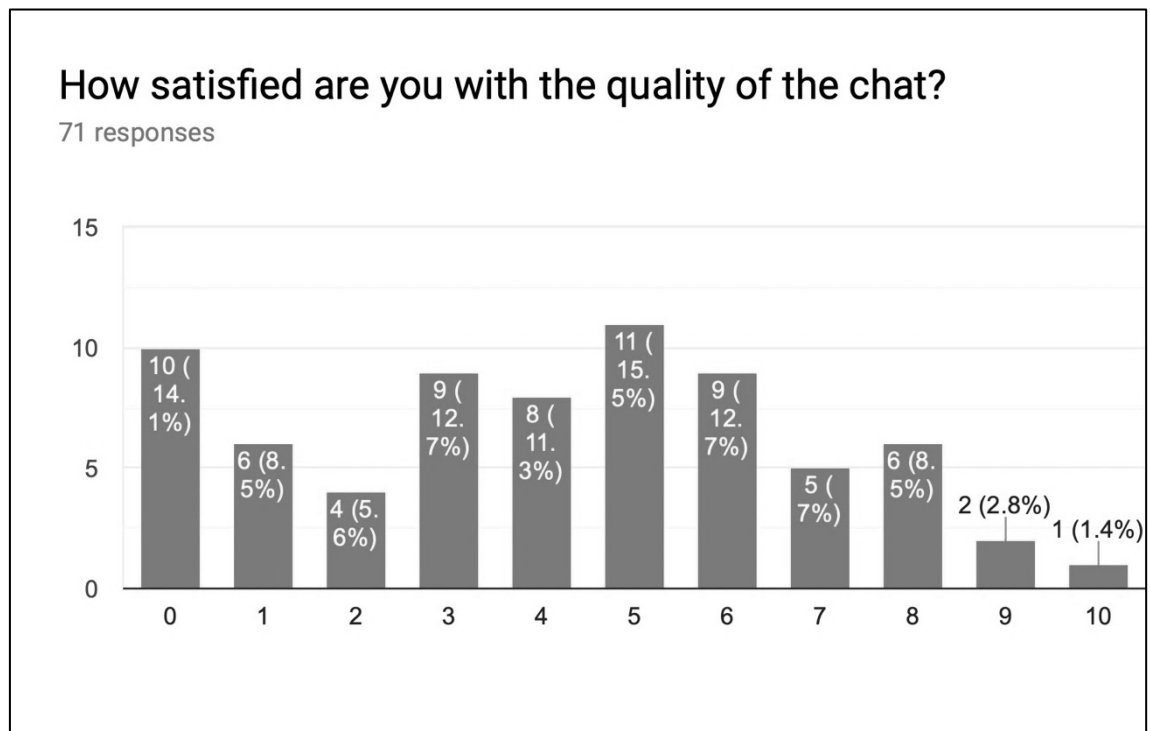


Figure 14. Respondents' satisfaction with quality of the chat

Figure 14 shows that the ratio of detractors outweighs the ratio of promoters and therefore a negative net promoter score is present. A closer look also shows that the majority of respondents are rather dissatisfied with the quality of the chat. The reasons for this are the problems that this type of communication creates. 40% of the people surveyed experienced problems during use. The problems most frequently occurring among respondents are the following: misunderstanding, spelling errors, unhelpful answers, no problem solving, or the chat was even cancelled.

The quality of the chat can also be influenced by the response time, which in turn affects customer satisfaction. The following chart illustrates how satisfied respondents are with the response time.

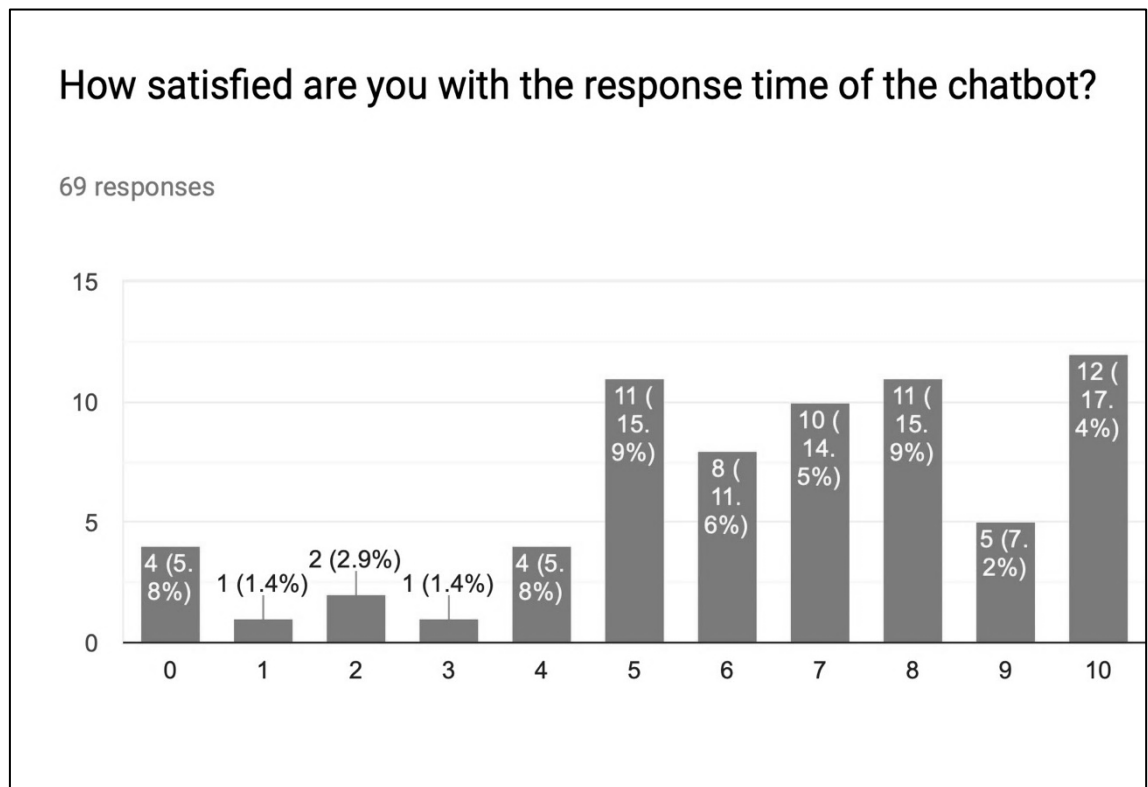


Figure 15. Respondents' satisfaction with response time

Figure 15 clearly indicates that the majority of respondents are satisfied with the response time. In addition, it becomes clear that although the net promoter score would be negative, since the proportion of detractors is higher compared to the promoters, the majority of respondents are very satisfied with the response time. There is a reason for this high satisfaction: The chatbots discussed in this survey are operated by artificial intelligence. Artificial intelligence systems have the ability to answer multiple questions simultaneously, which is unlikely for human intelligence.

All in all, it can be concluded that buying behaviour is negatively influenced by dissatisfaction with quality, as in many cases it does not lead to a satisfactory result. Nevertheless, the satisfactory response time has a positive influence on buying behaviour. Overall, if the quality, especially the result of the chat, is not satisfactory, the fast response time cannot satisfy the customers. This artificial intelligence application is likely to have a negative impact on the buying behaviour because it is used in the two important phases of the buying process.

7.4 Summary of the results

The previously evaluated results indicate a strong tendency that all three artificial intelligence-based applications do not support customer satisfaction. It is important to note that the survey is limited to 173 respondents. Each answer depends on individual preferences, desires, needs, feelings and interests. In almost all cases Facebook ads, Amazon recommendations and chatbots cause dissatisfaction on the part of the users. The result is that buying behaviour is not positively influenced. There is even the possibility that it will be negatively influenced. These results also have an impact on the purchasing process.

How do Facebook ads influence buying process?

Facebook ads advertise products, services and events that interest the user. This is mostly based on previous product searches. This type of AI based application mainly influences the pre-purchase process. This is a crucial phase in which the customer decides whether to buy the product or not. The idea of using Facebook ads is to remind customers of the products they are looking for. However, as already stated in the empirical part, artificial intelligence cannot distinguish how strong the customer's interest is in the product being searched for. This means that it is possible that Facebook ads often advertise wrong products, which causes dissatisfaction for the customer. This theory is confirmed by the results of the survey. Facebook ads lead to customer dissatisfaction, both in terms of frequency and content quality. This dissatisfaction in the pre-buying process does not positively influence the entire buying process. Due to this dissatisfaction it is more likely that the buying process will be negatively influenced. The result can be that the buying process is interrupted because the customer projects the dissatisfaction triggered by Facebook ads onto the product.

How do Amazon recommendations influence buying process?

On the one hand, Amazon recommendations enable customers to find products that other customers who were looking for the same product are interested in. In addition, Amazon also suggests products that are similar to the product or that support the product. This type of artificial intelligence-based applications is also crucial in the pre-buying process. The influence of Amazon recommendations on

buying behaviour is minimal, as the results of the survey show that products from both categories are rarely purchased. Neither the number of recommended products nor the content quality can convince the customers. Both factors create dissatisfaction on the part of customers. These results show that Amazon recommendations do not positively influence the pre-buying process. However, this does not mean that the purchasing process is generally negatively influenced. This form of AI based applications does not advertise the product you are looking for but refers to related products. Thus, it is possible that the customer does not associate the dissatisfaction of the recommendations with the actual product.

How do chatbots influence buying process?

Chatbots are used for communication between the customer and the company. In recent years it has become more popular to use artificial intelligence to control these chatbots. This causes a number of problems, such as automatized answers that influence the buying process. In opposite to the both other applications, chatbots have an influence on the pre-buying process as well as on the post-buying-process. Communication with the customer is essential during the entire buying process. The communication with the customer before the purchase decision is important, in order to take the doubts away from the customer and to answer all questions in the best possible way, in order to promote the purchase. However, communication after the purchase decision is also important to increase the recommendation rate and to keep the user as a customer. Customer satisfaction has to be ensured in both phases. The results of the survey show that the majority of respondents are dissatisfied with the quality of the chats. This dissatisfaction is caused by various problems. Satisfaction in terms of response time cannot compensate dissatisfaction in terms of quality. In the pre-buying process a negative influence is possible with the result that no purchase takes place. Dissatisfaction in the post-buying process can cause that the customer will not recommend the product or even complain about the product. Thus, in general dissatisfaction prevails with the communication between customers and chatbots and the buying process is negatively influenced.

In the following, the results of the sub questions are summarized in order to draw a conclusion for the main question.

8 Conclusion

The evaluation of the empirical parts conclude that the buying process is not positively influenced by all three artificial intelligence-based applications. The probability that Facebook ads and chatbots have a negative impact is very high because applications can be projected directly onto the product. Although the amazon recommendations are related to the product, the probability of a negative impact on the buying process is more unlikely. Based on the results and evaluations of the survey, the main research questions can be answered in the following.

How does AI marketing influence customer satisfaction?

Artificial intelligence marketing is represented in this bachelor thesis by three different applications: Facebook ads, Amazon recommendations and chatbots. The evaluation of the survey indicates that all three AI-based applications have no positive influence on buying behaviour, which is caused by dissatisfaction of the respondents. Therefore, the question can be answered clearly: AI marketing does not influence customer satisfaction positively. Whether a negative influence takes place depends on the applications and each customer.

The results of this bachelor thesis show that AI marketing does not promote customer satisfaction at the moment. This does not mean that the concept of the analysed applications is poorly developed. The idea of using Facebook, Amazon and chatbots to positive control the buying process is essential, as online retailing is increasingly being influenced by these applications. Artificial intelligence is constantly developing. Thus, AI marketing is also being further improved. In the future, Facebook ads should concentrate more on the actual interest of the customer. The artificial intelligence systems should be able to distinguish between the different levels of interest. Amazon recommendations could attract more customer interest by a more precise selection in the future. Chatbots have the best foundation. The reasons that create dissatisfaction are known by the companies and can therefore be countered. In the future, all three applications will be able to positively influence customer satisfaction if AI marketing works hand in hand with the development of artificial intelligence.

The results of this study are based on a survey answered by 173 participants. In summary it can be said that for this topic a questionnaire was the best possible method as it collected as many responses as possible. However, in retrospect, the method of interviews would also be an option, as it allows to pay more attention to the reasons for the answers. For a survey in which satisfaction is questioned, the tool net promoter score is often used. This is however unfavourable for a detailed consideration of the satisfaction, since only the detractors and promoters are considered and thus a majority of the opinions is ignored. Nevertheless, the results are based on a fundamental foundation and lead to a significant result. In addition, these results can be used for further research as they provide a good basis for the relationship between AI marketing and customer satisfaction.

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Appendix

1. Questionnaire: questions

Influence of artificial intelligence on customer satisfaction in online retail

I am an exchange student of the Business Administration faculty of Saimaa University of Applied Science. As a part of my bachelor thesis I am conducting a survey about the influence of artificial intelligence (AI) marketing on customer satisfaction in online retail. We encounter artificial intelligence online more often than we think. Artificial intelligence has become an important component especially in online retail. Simply explained, artificial intelligence means that systems understand, learn and think like humans. Artificial intelligence is used in the most diverse areas of online retail. This questionnaire focuses on Facebook ads, Amazon recommendations and chatbots. In order to get a better understanding of these AI based applications, they are illustrated below.

The purpose of the research is to find out the satisfaction of customers using Facebook, Amazon and Chatbots.


The required time for answering the questionnaire amounts to approximately 10 minutes. The responses will be processed anonymously and confidentially. Individual people cannot be recognized from the published results.

Thank you for participating!


* Required

Facebook ads

SponsoredCreate ad




Seasonal worker - Lapland needs you now!
[UKKO.fi/seasonal-work](https://ukko.fi/seasonal-work)
Tired of sitting at home or at the office?
Missing snow and action? It might be grey sti...




KAPTEN & SON
kapten-son.com
BORN FOR ADVENTURE 🌍 ➔ Discover the backpacks of Kapten & Son now !

Amazon recommendation


Sponsored products related to this item Page 1 of 25




AmazonBasics Hard Case Trolley
★★★★☆ 29
£75.99 -prime




Kensler 4-Piece Basic Hard Shell Suitcase Trolley Travel Luggage Set Lock 4 Wheels A...
★★★★☆ 28
£99.80 -prime




Pure - Hartmann-Koffer Hugo | Trolley mit 4 Rollen und TSA-Schloss in Größe: M |...
★★★★☆ 7
£71.00



KESSE® 3-Piece Travel Suitcase Set Trolley Hard Case Suitcase M-L-XL Silver
★★★★☆ 8
£89.90 -prime



Flies Hard Shell Suitcase with Twin Wheels with Combination Lock Cabin Luggage 35/...
★★★★☆ 59
£80.99




Kerry black
★★★★☆ 13
£79.99

[Feedback](#) Page 1 of 3


Customers who viewed this item also viewed




HAUPTSTADTKOFFER Suitcase Also, 65 cm, green - sylphgrün, 54762475




Hauptstadtkoffer Spree TSA 75 cm 128 Litres Hard Shell Suitcase Wheeled Roller Case Trolley...



Capital 82 L (Approximately 65 x 40 x 30 cm) - hardshell case - Model: Spree HK...



Hauptstadtkoffer Luggage Set, Cyan blue
★★★★☆ 132
EUR 84.99




Capital 82 L (Approximately 65 x 40 x 30 cm) - hardshell case - Model: Spree HK...



Hauptstadtkoffer Spree TSA 75 cm 128 Litres Hard Shell Suitcase Wheeled Roller Case Trolley...

Chatbot



LADIES MEN DIVIDED KIDS H&M HOME SALE SUSTAINABILITY


HM.COM / CUSTOMER SERVICE


HOW CAN WE HELP YOU TODAY?


Store locator
Find opening hours and information about our stores

Find in store
Check if the item is available in a store near you

POPULAR TOPICS

 DELIVERY


 PAYMENTS

 RETURNS

Welcome to H&M

H&M Virtual Assistant:
Hi, I'm H&M's handy chatbot. I can provide super-fast answers to frequently asked questions, as well as help you find the perfect item. What can I assist you with today?

Type here (max 110 characters) Send

AA 

1. Did you know what artificial intelligence is before it was explained in the introduction? *

Mark only one oval.

- ☐ Yes
- ☐ No

2. Did you know that the following tools are programmed by AI before it was explained in the introduction? *

Mark only one oval per row.

	Yes	No
Facebook Ads	<input type="radio"/>	<input type="radio"/>
Amazon recommendations	<input type="radio"/>	<input type="radio"/>
Chatbots	<input type="radio"/>	<input type="radio"/>

Facebook ads

The following questions refer to Facebook ads.

3. Are you using Facebook? (if no, you can skip the following questions in section 2) *

Mark only one oval.

- ☐ Yes
- ☐ No

4. Have you already come into contact with Facebook ads?

Mark only one oval.

☐ Yes

☐ No

5. How much time do you spend on Facebook approximately daily? (in minutes)

6. Can you estimate how many ads you get a day on Facebook?

7. In what context is the advertising connected? (e.g. previous product search or unspecific)

8. How often are you interested in a displayed ad?

Mark only one oval.

	0	1	2	3	4	5	6	7	8	9	10	
very rare	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	very often

9. How often do ads contribute to the purchase of a product?

Mark only one oval.

	0	1	2	3	4	5	6	7	8	9	10	
very rare	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	very often

10. How satisfied are you with frequency of Facebook ads?

Mark only one oval.

	0	1	2	3	4	5	6	7	8	9	10	
very unsatisfied	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	very satisfied

11. How satisfied are you with content quality of Facebook ads?

Mark only one oval.

	0	1	2	3	4	5	6	7	8	9	10	
very unsatisfied	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	very satisfied

Amazon recommendations

The following questions refer to Amazon recommendations.

12. **Are you using Amazon? (if no, you can skip the following questions in section 3) ***

Mark only one oval.

- ☐ Yes
☐ No

13. **How often do you purchase from Amazon?**

Mark only one oval.

	0	1	2	3	4	5	6	7	8	9	10	
very rare	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	very often

14. **Do you know the "customers who viewed this item also viewed" recommendations?**

Mark only one oval.

- ☐ Yes
☐ No

15. **How often do you use the "customers who viewed this item also viewed" recommendations?**

Mark only one oval.

	0	1	2	3	4	5	6	7	8	9	10	
very rare	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	very often

16. **How often do you buy products from the "customers who viewed this item also viewed" recommendations?**

Mark only one oval.

	0	1	2	3	4	5	6	7	8	9	10	
very rare	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	very often

17. **Do you know the "sponsored products related to this item" recommendations?**

Mark only one oval.

- ☐ Yes
☐ No

18. **How often do you use the "sponsored products related to this item" recommendations?**

Mark only one oval.

	0	1	2	3	4	5	6	7	8	9	10	
very rare	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	very often

19. How often do you buy products from the “sponsored products related to this item” recommendations?

Mark only one oval.

	0	1	2	3	4	5	6	7	8	9	10	
very rare	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	very often

20. How satisfied are you with number of recommended products?

Mark only one oval.

	0	1	2	3	4	5	6	7	8	9	10	
very unsatisfied	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	very satisfied

21. How satisfied are you with content quality of recommended products?

Mark only one oval.

	0	1	2	3	4	5	6	7	8	9	10	
very unsatisfied	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	very satisfied

Chatbots

The following questions refer to chatbots.

22. If you had the choice, what would you prefer?

Mark only one oval.

- ☐ by phone
☐ by email
☐ with chatbot

23. Have you already used chatbots? (if no, you can skip the following questions in section 4) *

Mark only one oval.

- ☐ Yes
☐ No

24. How satisfied are you with the quality of the chat?

Mark only one oval.

	0	1	2	3	4	5	6	7	8	9	10	
very unsatisfied	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	very satisfied

25. How satisfied are you with the response time of the chatbot?

Mark only one oval.

	0	1	2	3	4	5	6	7	8	9	10	
very unsatisfied	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	very satisfied

26. Have problems occurred during use?

Mark only one oval.

☐ Yes

☐ No

27. What problems have occurred during use?

Basic data

28. What is your gender? *

Mark only one oval.

☐ Female

☐ Male

☐ Intersex

☐ Prefer not to say

29. How old are you? *

30. Where are you living? (city, country) *

31. What is your occupation? *

Mark only one oval.

☐ pupil / trainee

☐ student

☐ employed

☐ unemployed

☐ pensioner

☐ other

2. Questionnaire: responses summary

QUESTIONS

RESPONSES 173

173 responses

Not accepting responses

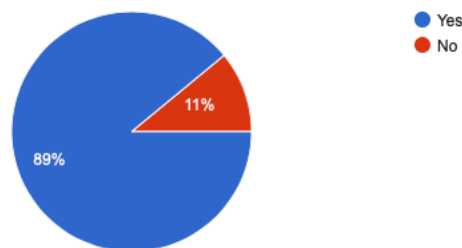
Message for respondents
This form is no longer accepting responses

SUMMARY

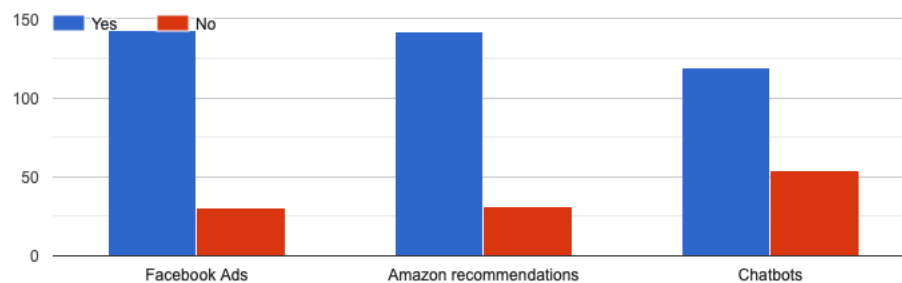
INDIVIDUAL

Did you know what artificial intelligence is before it was explained in the introduction?

173 responses



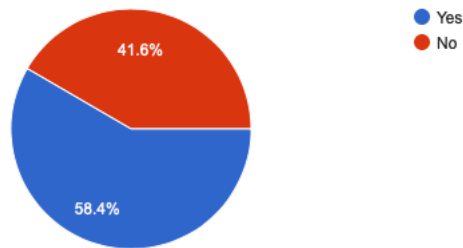
Did you know that the following tools are programmed by AI before it was explained in the introduction?



Facebook ads

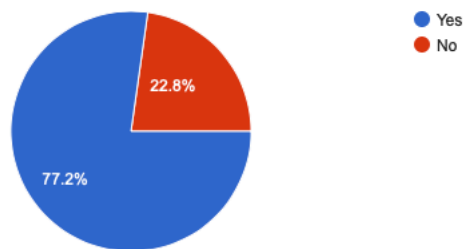
Are you using Facebook? (if no, you can skip the following questions in section 2)

173 responses



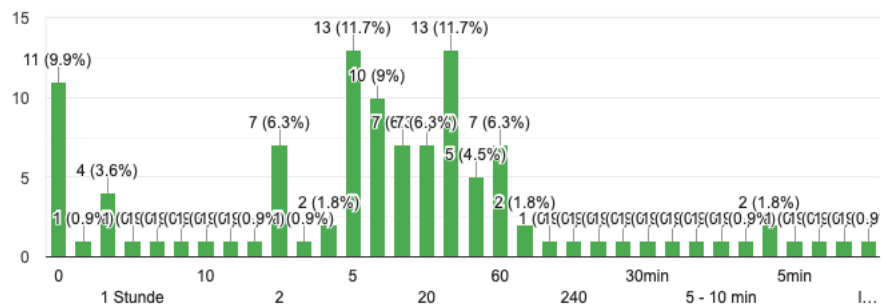
Have you already come into contact with Facebook ads?

123 responses



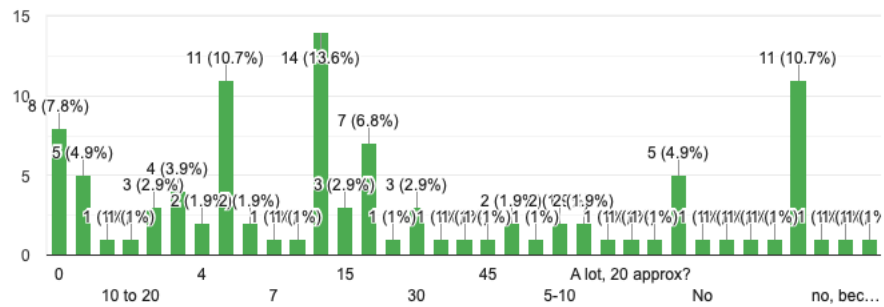
How much time do you spend on Facebook approximately daily? (in minutes)

111 responses



Can you estimate how many ads you get a day on Facebook?

103 responses



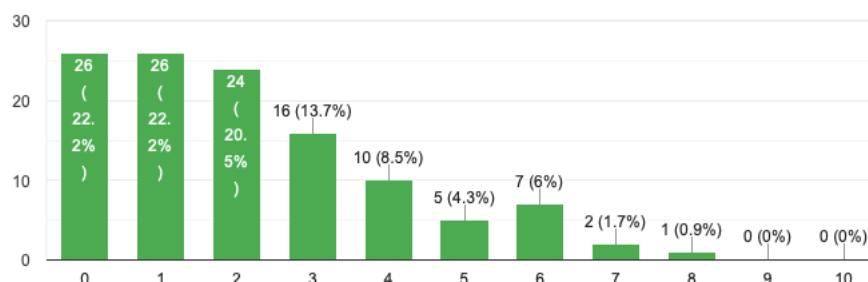
In what context is the advertising connected? (e.g. previous product search or unspecific)

85 responses

unspecific
previous product search
Previous product search
previous product
0
previous product search
Previous product search searches
Product search, likes on pages, general interests
Previous product searched or I got the feeling even if I just mention a product to a friend, I get ads the day

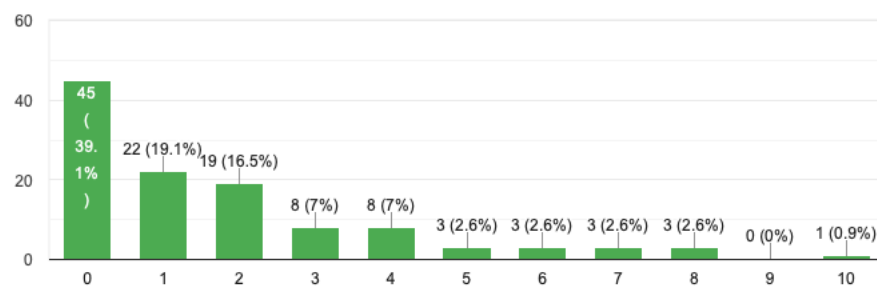
How often are you interested in a displayed ad?

117 responses



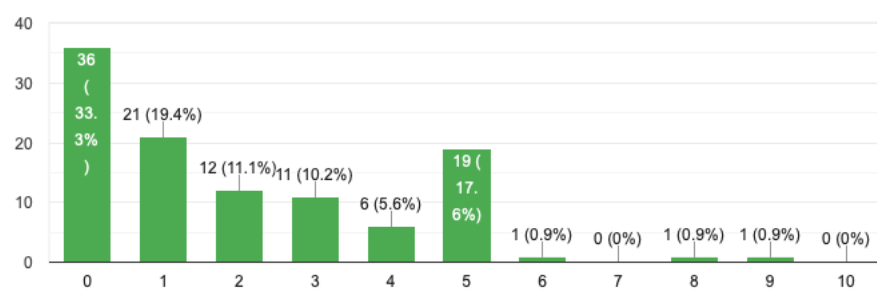
How often do ads contribute to the purchase of a product?

115 responses



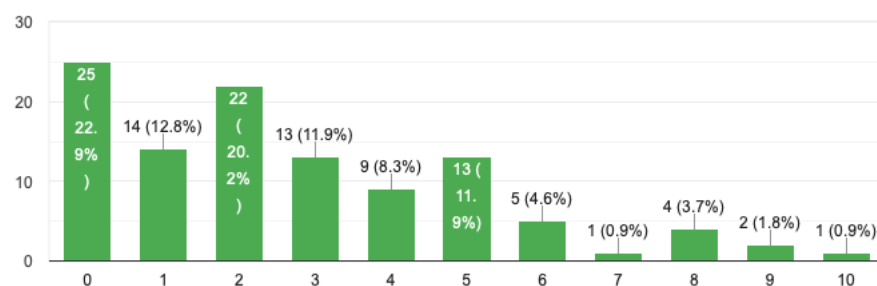
How satisfied are you with frequency of Facebook ads?

108 responses



How satisfied are you with content quality of Facebook ads?

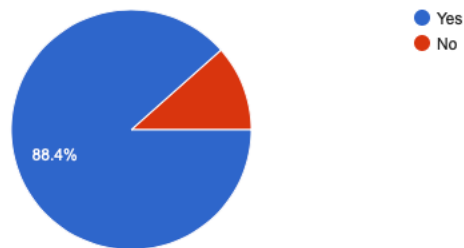
109 responses



Amazon recommendations

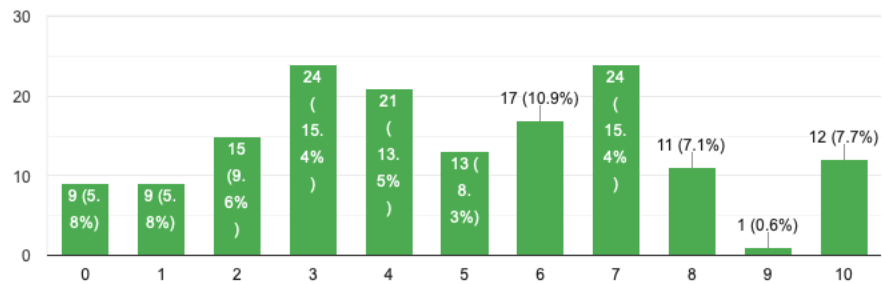
Are you using Amazon? (if no, you can skip the following questions in section 3)

173 responses



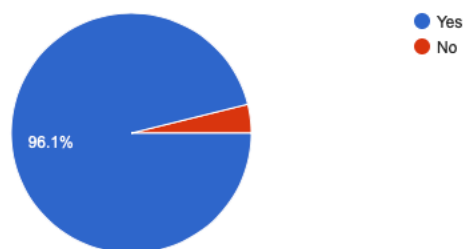
How often do you purchase from Amazon?

156 responses



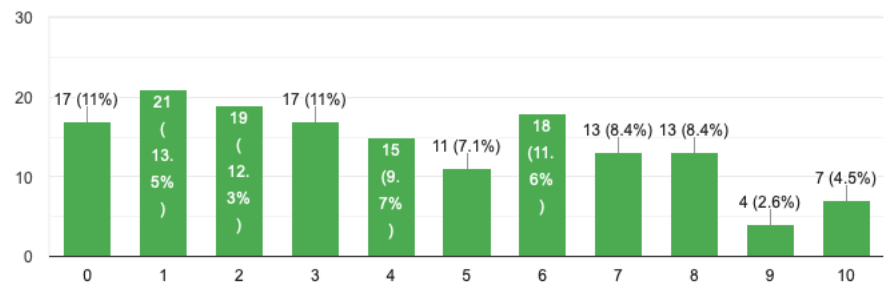
Do you know the "customers who viewed this item also viewed" recommendations?

155 responses



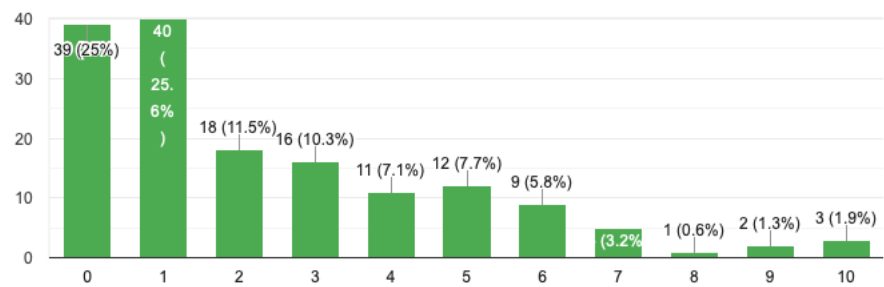
How often do you use the "customers who viewed this item also viewed" recommendations?

155 responses



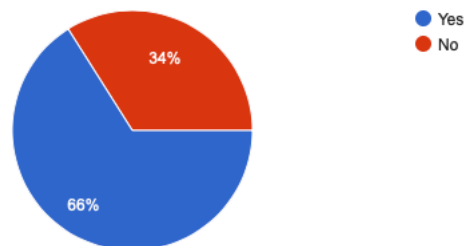
How often do you buy products from the "customers who viewed this item also viewed" recommendations?

156 responses



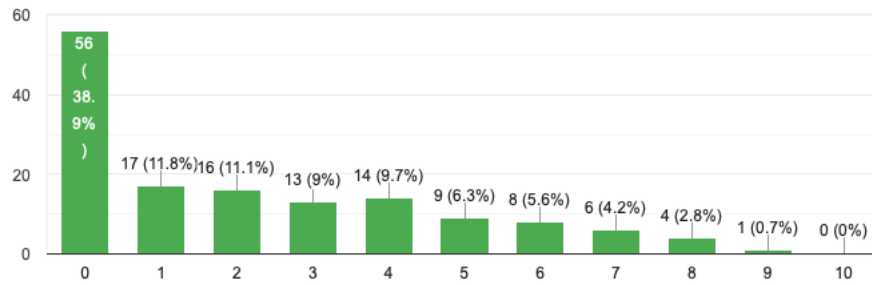
Do you know the "sponsored products related to this item" recommendations?

156 responses



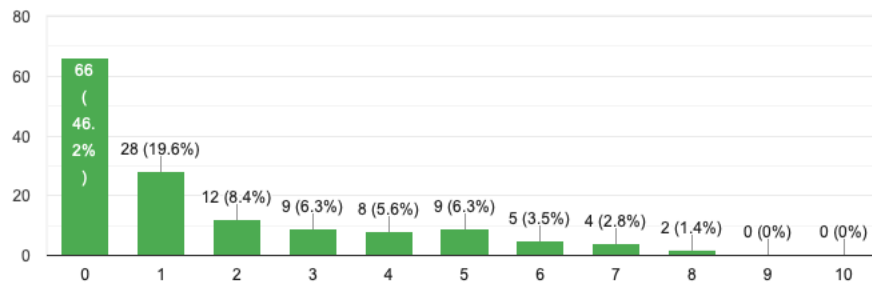
How often do you use the “sponsored products related to this item” recommendations?

144 responses



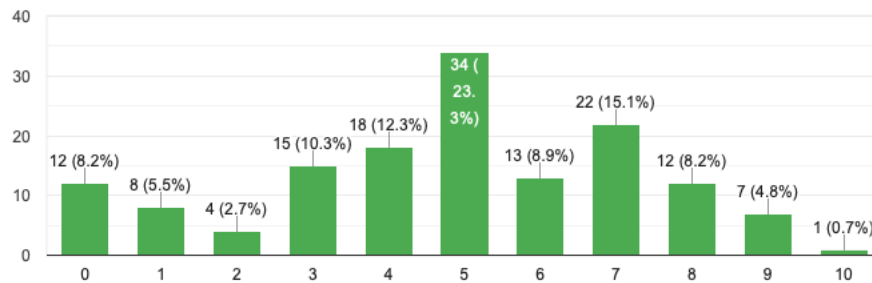
How often do you buy products from the “sponsored products related to this item” recommendations?

143 responses



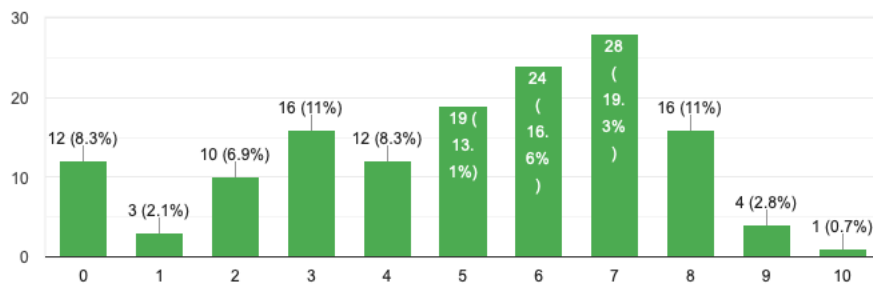
How satisfied are you with number of recommended products?

146 responses



How satisfied are you with content quality of recommended products?

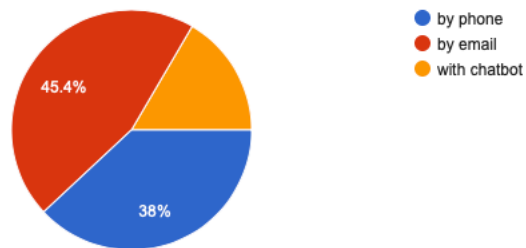
145 responses



Chatbots

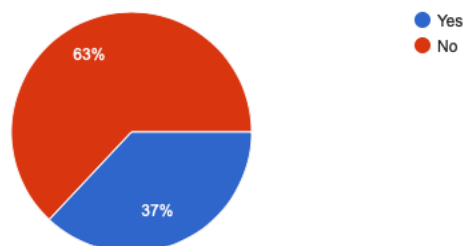
If you had the choice, what would you prefer?

163 responses



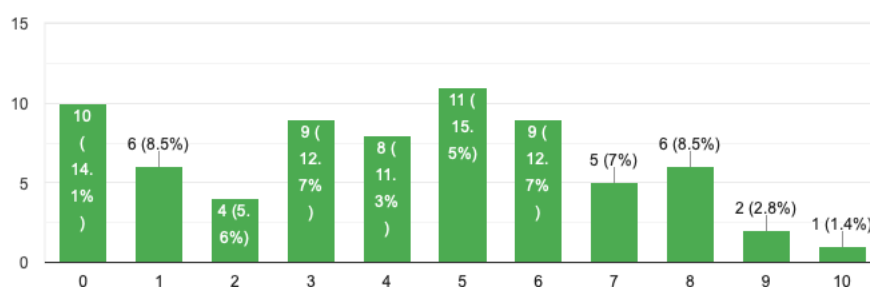
Have you already used chatbots? (if no, you can skip the following questions in section 4)

173 responses



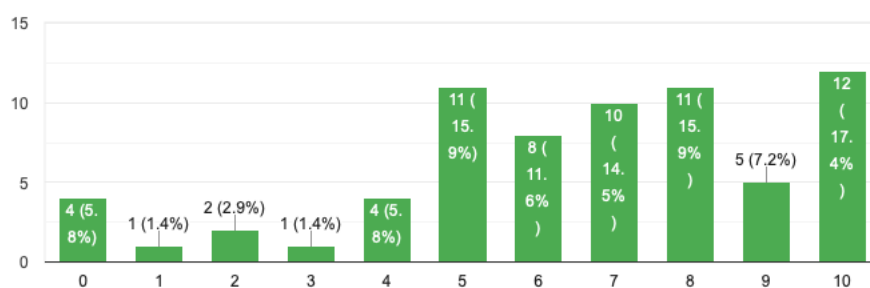
How satisfied are you with the quality of the chat?

71 responses



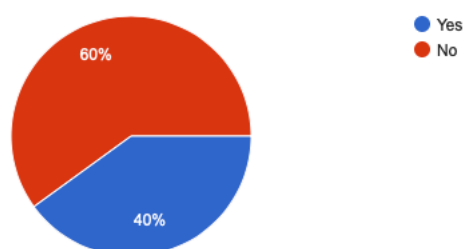
How satisfied are you with the response time of the chatbot?

69 responses



Have problems occurred during use?

70 responses



What problems have occurred during use?

23 responses

Couldn't handle a specific case. Can only give automatized answers and isn't able to consider all points of a request. Would be better if IA would be the first person to answer and if it gets too complex a real person should take it over

Did not understand my problem and gave me an email that was not working.

did not understand my question

The bot didn't understood my problem.

As a non-native English speaker, it is a regular occurrence, that English chat bots are having significant problems with grammar and spelling errors.

-

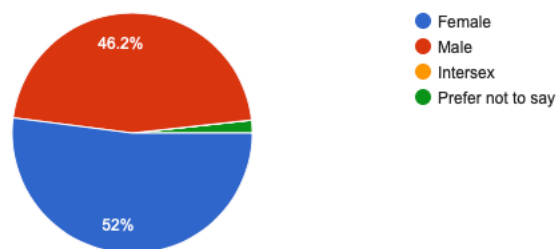
Mostly just unhelpful messages in form of not fitting or missing information

the chatbot did not understand me

Basic data

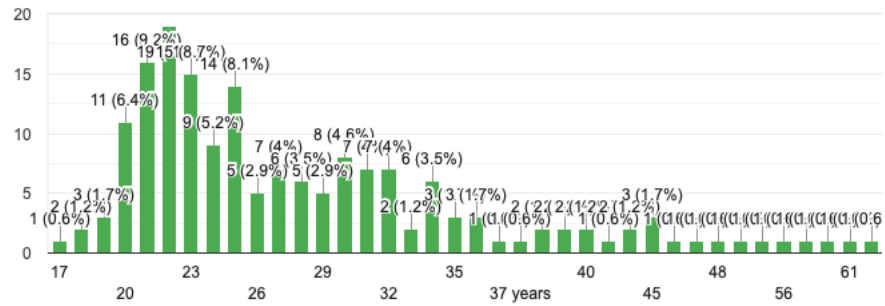
What is your gender?

173 responses



How old are you?

173 responses



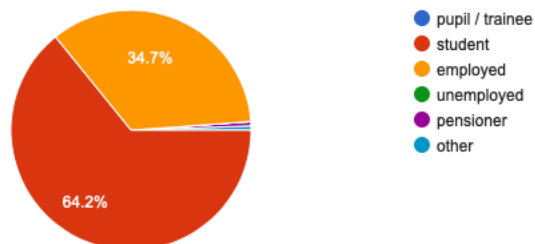
Where are you living? (city, country)

173 responses

Germany
Bernburg, Germany
Köthen, Germany
Dessau, Germany
Bernburg
Germany
Leipzig, Germany
country
Augsburg, Germany
Halle (Saale), Germany

What is your occupation?

173 responses



2. Data matrix

[illegible]